HYGEIA

The HEALTH MAGAZINE

PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION

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CONTRIBUTORS TO THIS ISSUE

● DR. MORRIS FISHBEIN, Editor of HYGEIA, contributes two timely articles: In "Sickness Insurance and Sickness Costs" he presents a thorough analysis of the problem of state systems of sickness insurance and shows why they are not feasible for America; and in "Nobel Prize Winners in Medicine" he reviews the contributions made by the scientists who have received this signal award for important work in medicine.

● For obvious reasons the true identity of the author who styles himself "JEAN BRODERICK" cannot be revealed. His story, "The Making and Unmaking of a Quack," is a straightforward confession of the part that this penitent played in the "patent medicine" mail order diagnosis racket. . . . EUGENIA DOYLE, whose profession is nursing and whose hobby is writing, combines her knowledge of both fields in a delightful story, "Seeing Christmas."

● DR. SMILEY BLANTON, assistant professor of clinical psychiatry, Cornell University Medical College, explains the depressive reactions of middle life and tells how to lay and maintain the foundations for sane, well adjusted middle years. . . . INES S. MACAULAY, a previous contributor to HYGEIA, compares modern meals and methods with those of yesterday. . . . DR. CLAUDE LILLINGSTON discusses the life and habits of the flea.

● In "Physical Examinations," DR. HERBERT B. WILCOX and MIRIAM T. SWEENY present the first articles in a symposium on health and disease. Dr. Wilcox, who is professor of diseases of children, Columbia University College of Physicians and Surgeons, considers the value of the physical examination from the medical point of view, while MIRIAM T. SWEENY, graduate of the department of hygiene, Wellesley College, discusses its benefits from the point of view of structural hygiene.

● DR. JOHN A. KOLMER, who contributes an enlightening article on the Wassermann test, is professor of medicine, Temple University School of Medicine. . . . DR. GEORGE BAEHR brings hopeful and helpful advice in "The Problems of Anemia." . . . DOROTHY M. WOLDSTAD is a member of the department of corrective speech, St. Louis public schools.

● DR. HYMAN COHEN continues "The Eye Book" with a chapter on structural abnormalities of the eye. . . . JAMES A. TOBEY, DR.P.H., whose name appears frequently among HYGEIA authors, concludes his two-part article, "Tuberculosis and the Kings of France." . . . In her discussion of sweets, syrups and sugars that have been accepted by the American Medical Association's Committee on Foods, DORIS W. MCCRAY, food consultant, includes timely suggestions for the holiday season.

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DECEMBER 1934

Human Sterilization

STERILIZATION of a human being involves any procedure that will prevent him or her from propagation. It does not involve complete destruction of the sex organs; such a procedure would change both the physical and the mental characters of the persons concerned. In the male the operation is relatively simple; it consists of interference with the passage of the male sex cell along the tubes which carry it to the female. The operation requires but a few minutes and is less difficult than the removal of tonsils.

In the female the operation involves opening of the abdomen and is, therefore, exceedingly difficult. Nevertheless, the mortality from the operation is slight. More than 5,000 operations on women, performed in California, were successful in all but three cases; and in these three cases, deaths were due to complications.

The number of persons who might be subjected to such an operative procedure has been variously estimated as representing anywhere from 1 per cent to 25 per cent of the total population. No one, however, plans now for anything like such a mass sterilization as this would involve.

During the first year of operation of the German law, Germany had some 60 million people, of whom it has been estimated that 400,000 were known defectives who ought to be sterilized. In the United States, it has been estimated that there are more than 1 million feebleminded persons of child-bearing age. This could be considered the lowest estimate. We have in this country twenty-seven states in which there are laws covering sterilization, and more than 16,000 persons have been sterilized since these laws first became effective. We have at least 60,000 feebleminded patients in institutions and 300,000 outside institutions. There are at least 3 million children now coming into grade schools who will never develop enough mentally to graduate from the eighth grade.

In fifteen states which recently reported their work with sterilization there were 6,246 sterilizations of the insane; 2,938 sterilizations of the feebleminded; 55 of epileptics; 16 of hereditary criminals, and 5 of persons reported as merely nervous.

The German law became effective Jan. 1, 1934. The Germans estimate that they require 400,000 sterilizations, of which 200,000 will be for hereditary feeblemindedness. The Prussian minister of justice has said that special attention should be given first to weak minded and schizoid psychopathic persons, and second to criminals, including especially juveniles. Up to June 15, 1934, there were 3,025 requests for sterilization in Baden, representing 1.2 per cent of the population. Sterilization was legally ordered in 997 cases and refused in 32. Up to June 15, sterilization had been applied to 289 men and 293 women.

Recently an order has been issued in Germany to speed up the work because it is lagging behind. The institutions for mental patients are crowded to the limit, because an order has been issued to hold all patients with hereditary diseases in the institutions until their cases can be passed on as to the necessity for sterilization. In all the institutions in Germany, there are 163,000 inmates. It has been estimated that 36,000 sterilizations will be required for such conditions as congenital feeblemindedness, schizophrenia, maniac depressive insanity, hereditary epilepsy and hereditary chronic chorea.

ALL the world is not convinced of the usefulness of the sterilization program. A special committee appointed by the British Medical Association in 1930 brought in a report in 1932 indicating that if sterilization is to be applied only to certificable mental defectives in institutions, their number cannot be appreciably reduced. There are vast numbers of normal persons in the population who carry the possibility of giving birth to mentally defective children. The British committee held that even widely applied sterilization of mental defectives would not cause any appreciable decrease in the number in the community for many generations. They decided that there might be a few cases in which the feebleminded, after sterilization, could be released from institutions but that the total number was hardly sufficiently large to make it a serious problem.

The case for sterilization is not quite as simple as is usually assumed. The demand for compulsory sterilization has changed to a suggestion for voluntary sterilization. At present, the compulsory policy is difficult to justify.

EDITORIAL

American experience seems thus far to be an example of the futility of voluntary laws. In California in thirty-one years, only 6,767 persons were sterilized; and of this number, less than 1,400 were defectives. Furthermore, the eminent ethnologist Franz Boas says that it would require four generations to reduce the total number of persons with a recessive degenerative condition, now approximating 1 per cent of the population, to 0.5 per cent, and seven generations to reduce the number to 0.25 per cent.

It cannot actually be shown that the abnormal increase more than the normal. It can be shown, of course, that the abnormal have increased because of the policy of modern society to save the unfit. It is also shown that 10 per cent of the children of schizophrenic persons are themselves schizophrenic and that 90 per cent are normal. It is a question whether or not society has the right to deprive the 90 per cent of life and to deprive their children of the opportunity of giving birth to the 90 per cent of healthful children.

ANOTHER example of the deficiency of such social welfare legislation is the control of hereditary blindness. Under the German law, which imitates the American model, only total blindness is concerned. Nevertheless, there are many cases of persons whose blindness from a practical point of view is total but who can be declared seeing under physical tests. There are such severe recessive disorders of hereditary character as total albinism, pigmented retina, fluid accumulation which brings about blindness, total color blindness and hereditary destruction of the optic nerve. However, some of these conditions are inherited not through the person himself but through the female line only. The question that now arises is the right of the state to demand sterilization not only of the person who is afflicted but also of his sisters. There are, moreover, cases of blindness due to inherited anatomic changes in the eye.

How far has society a right to go in cutting down the happiness of the unfortunate individual who happens to come, not by his own request, into a sadly disordered world? When the state begins to tell the individual what to do, it sometimes produces remarkable performances. A Missouri legislator in 1929 introduced a compulsory sterilization law which fortunately was never passed; it would have made sterilization compulsory for all convictions of murder not done in passion, for convictions of highway robbery, automobile stealing, bombing and rape. It is a mistake to pass sterilization laws with the suggestion that sterilization is a punishment. It does not punish because it does not interfere in any way with the physical exercise of the sex functions; it merely makes it impossible for such exercise of the sex organs to result in the production of children.

The chief arguments against compulsory sterilization arise from general recognition of the impossibility of setting up courts that would exercise proper use of the mandatory power instead of abuse. About all we know now to justify sterilization is the fact that brilliant children are likely to come from brilliant parents and that feebleminded parents are liable to produce feebleminded children. But now and then some thirteenth child of a large family or some weakling crawling out of the dregs of the slums reaches a position of leadership which negates a good deal of social welfare theorization.

Social welfare legislation is unfortunately far too often experimental legislation which either lags behind scientific progress or anticipates the results of scientific experiments. It is a question whether we know enough about the heredity of various defects to warrant compulsory legislation of any kind. Can we sufficiently distinguish between the effects of heredity and those of environment?

A scientific study of heredity indicates that the elimination of any stock from the general public does in time lower the percentage of that stock in future generations. If we continue to fail to eliminate defective stock, if we continue to permit the mating of defective with defective, and if we constantly interfere with nature's methods of destroying defective stock, there must be a gradual increase in the number of defectives. But while we are carrying out our trifling and picayune attempts to control nature's experiments, she herself is carrying out her experiments on a large scale. She sometimes produces effects for which we cannot plan and which we cannot in any way control. I need only mention in this connection the planned economy which destroyed a few million head of stock and nature's drouth which took care of the destruction of more stock than we could ever have destroyed by any type of plan.

HUMAN sterilization is a topic for discussion by eugenists and social welfare workers, but the evidence as to its practicality is far too slight at this time to command anything in the nature of an endorsement. The true scientists observe the evidence and are willing to continue a policy of watchful waiting, while Germany and other fascist nations use their scientists for the promotion of political experiments on a pseudo-scientific basis.

Sickness Insurance and Sickness Costs

By
MORRIS
FISHBEIN

In those days, when the doctor made most of his diagnoses from what the patient told and from such simple examinations as he could make with his five senses, the expense of medical practice was not great. Modern scientific medicine costs much more and is worth it.

IN THE DAYS when the doctor traveled in a buggy or on horseback and carried his drugs with him in a satchel or in his saddle-bags, the expense of medical practice was not great. In those days the doctor made most of his diagnoses from what the patient told him and from such simple examinations as he could make with his five senses. Nowadays he uses all sorts of intricate apparatus for determining definitely the condition and ability to function of various organs in the human body. Today by use of the x-rays and various dye substances that are injected into the body the doctor can actually see the outlines of almost every internal organ. No longer is it necessary for him to guess at the changes that have taken place in the blood. They can be measured by chemical, physical and microscopic tests in the laboratory. Around 1890, medicine was practiced only by the doctors with the aid of a few nurses. Today in addition to the 155,000 doctors in the United States there are about 1,250,000 other people who spend their full time in taking care of the sick. These include nurses, practical nurses, dietitians, x-ray technicians, laboratory technicians, anesthetists, ambulance drivers, orderlies, radio technicians, hospital clerks, hospital librarians, social workers and innumerable other special employees. Whereas we formerly had less than 1,000 hospitals in the United States, we now have about 7,000 hospitals. Overhead in medical practice has become tremendous, and the medical bill has proportionately increased.

In an earlier day when a child was sick, the family usually took care of him at home. Most of the obstetric work was done in the home. Rarely was there any need for a hospital bill. Nowadays practically all of surgery and a good deal of medical care in serious diseases is carried out in the hospital. A part of the reason for this is the changing character of our civilization. With people living in kitchenette apartments and with mothers working in industry, perhaps there is neither room nor the conveniences for the care of the sick at home. Frequently there may be no one at home to carry out the doctor's orders and to help in nursing the patient.

Modern medicine, therefore, costs more than medicine used to cost. But it is worth a great deal more! Through the advancement of modern scientific medicine the expectancy of life at birth has moved up from 33 years to almost 60 years. Vast numbers of people live longer than people used to. As a result, one of the big problems of the day is the care of the aged.

TABLE 1.—*Provisions of National Sickness Insurance Systems* *

Date of Enactment of Law	Qualifications for Insured		Population	Number Insured and Beneficiaries						Physicians		
				Number Insured				Total Beneficiaries, Including Families				
				Compulsory		Voluntary				Total in Country	Engaged in Insurance	
	Compulsory	Voluntary		Number	Per Cent	Number	Per Cent	Number	Per Cent		Number	Per Cent
Germany Industry, 6/15/83 Commerce, 1885 Industry, 1886	All salaried and wage workers, domestic apprentices; professors, teachers, etc., under 2,700 M. annually	a. Former compulsorily insured b. Small employers, 2,700 M. maximum c. Families of insured	63,000,000	19,800,000	31.4	1,600,000	2.5	40,000,000	63.5	50,000	35,000	70
Austria 1887; modified 28 times since and extended	All wage workers (no wage limit) except artisans and independent workers	a. Former compulsorily insured b. Small employers	6,300,000	.....	....	63,000	1.0	4,800,000	76.0	8,000	7,500	94
Bulgaria 1918; modified 3/6/24 and 2/2/29	All employed workers and small employers; limit, 2,000 Swiss Fr.	a. Former compulsorily insured b. Public employees c. Merchants d. Liberal professions (limit 2,000 levas)	5,800,000	230,000	3.9	2,000 to 3,000	0.39	Does not include family	....	2,300	1,100	48
Belgium Proposed	Proposed: all wage workers	.....	8,060,000	2,200,000 (proposed)	26.0	?	....	6,000,000 (proposed)	75.0	5,500	.....	..
Denmark 1892; modified 1915, 1921-1927, 1933	No compulsory†	All persons with low incomes, regardless of occupation	3,500,000	No compulsory†	....	1,558,000	65.1	Does not include family	65.1	2,000	Great majority	..
Danzig Same as Germany	All wage workers under 4,500 M.	All persons insured for 26 weeks of preceding year	407,500	?	....	?	....	200,000	49.0	282	200	67
Esthonia 4/23/12; modified 1917	All industrial workers	Very few in private organizations	1,200,000	40,000	3.3	.....	....	90,000	7.5	.....	.....	..
France 4/30/30	All earning less than 18,000 Fr. (15,000 Fr. in provinces)	a. Former compulsory b. All earning less than 15,000 Fr.	41,000,000	8,000,000	19.0	?	?	12,000,000	29.0	27,000	18,000 (?)	66
Great Britain 1911; many changes; new law, 1924	a. All manual workers b. All nonmanual receiving less than £250 annually	a. Former compulsory b. Those authorized by the minister of health c. Earning less than £160 annually	44,500,000	17,500,000	....	300,000	....	Does not include family	....	36,000	17,700	49
Holland 6/5/13; in force but not as whole, since 1913	(Accident insurance only); all workers under 3,000 Fl. ann.	Open to all	7,800,000	1,227,500 (accident only)	....	1,160,000	....	Does not include family	....	4,450	3,700	84
Hungary 1891	All workers under 24,000,000 Cr.	a. Former compulsory b. Independent artisans c. Small employers; limit, 8,400,000 Cr.	8,000,000	1,700,000	9.3	Not stated	....	Not stated	....	.....	.....	..
Latvia 1922	.....	.....	1,900,000	145,000	7.0	.....	....	240,000	12.5	1,062	600	56
Luxemburg 7/31/01; new law, 12/17/29	All workers in commerce and industry	Not compulsorily insured (domestics, small employers, etc.); limit, 12,500 Fr.	285,000	64,800	22.7	416	0.15	110,000	38.6	180	165	80
Norway 1911; amended 1915 and 1930	All workers under 5,400 Kr.	All receiving less than 5,400 Kr. annually	2,800,000	550,000	19.6	80,000	2.85	1,500,000	43.5	1,800	"Nearly all"	..
Palestine Proposed; voluntary at present	No compulsory insurance	All members of labor organizations	919,400	(None)	....	18,000	....	35,000	....	600	70	11.6
Poland 5/19/20	All employees (no wage limit) save agricultural, ecclesiastic and governmental	Former compulsory under 45 years of age	31,000,000	3,500,000	11.3	(Insignificant)	....	8,000,000	25.8	7,500	2,700	36
Sweden 7/4/10	No compulsory	All sickness insurance is voluntary	6,000,000	(None)	...	933,000	15.5	3,628,000	60.4	2,300	"Nearly all"	..
Switzerland 6/13/11	Not compulsory except in certain cantons	All Swiss citizens	4,100,000	(None)	....	1,400,000	34.0	Does not include family	....	3,350	2,700	80
Czechoslovakia 1919	All wage workers	No voluntary	14,000,000	2,600,000	19.0	56,000	....	10,000,000	73.5	8,000	6,400	80
Yugoslavia 1922	All workers except domestics, agricultural and governmental	Former compulsory; all wage workers exempt from compulsory	13,500,000	560,000	4.2	2,600	0.02	1,250,000	9.5	3,700	1,300	33.2
Greece	All workers, employees or domestic	a. Former compulsory b. Home workers										

* Compiled from replies to questionnaires by International Medical Association, as published in Revue internationale de médecine professionnelle et sociale, August 1931, corrected from all available later information.

† Made compulsory in October 1933.

None of the sickness insurance systems used abroad would do for the American people.

Moreover, there has been increased human happiness through increased health. Without health there can be no real happiness. Infant mortality rates have been cut down so that today only from 50 to 70 babies out of 1,000 who are born die in the first year of life instead of from 250 to 350 out of 1,000, which was the rate around 1890.

The investigators who have been studying the problems of medical care have found that the biggest difficulty today is the question of distribution. Not every one can afford large hospital bills or large medical bills. People have not learned to save against the cost of medical bills as they have saved against the cost of death. Life insurance is one way in which people save against the cost of death. Sickness insurance is a way of saving against the cost of sickness. When enough people save against the costs of death and in order to leave a little something for their families, life insurance rates are cheap. It has been the hope of a good many economists and social workers that some means could be found to cause people, whether sick or well, to put a certain sum of money away each week with the hope that they might have money available for paying the costs of severe sickness when it came upon them. By its elimination of a good deal of serious illness, medicine has wiped out the fear of disease and it is, therefore, exceedingly difficult to make people save against disease. Death they know is certain, but on disease many of them are willing to gamble.

There are a good many foreign countries with systems of sickness insurance controlled by the state. The English system is an example. It was developed by Lloyd George in 1911. Recently he said that nobody wanted the law when it was first proposed. However, the Liberal Party with which he was associated offered the system to the people as a panacea against much of the social unrest prevalent in England at that time. In the same way it is generally recognized that the German system of sickness insurance was offered to Germans by Bismarck in 1883 to allay the unrest then prevalent in that country.

In brief, these systems provide that workers who receive less than a certain sum of money annually shall have set aside from their wages a certain amount. The employer contributes a certain amount, and the state contributes a certain amount. This money is then made available for the care of most ordinary illnesses.

It has been shown that 90 per cent of the conditions for which most patients consult doctors can be diagnosed and treated by a good general practitioner with only the amount of equipment he can carry in a handbag. Most people do not worry much about paying for that kind of sickness. In this country the bills that disturb them are those for the major illnesses such as pneumonia and gastric ulcer and for operations as in cases of appendicitis and gallbladder disease. Nevertheless in Great Britain the sickness insurance system does not provide for these major illnesses but only for general medical service. When a man under the British system has to go into a hospital, has to have a specialist and is unable to pay, he goes into a charity hospital and is treated there by doctors who work without payment as they always have in the past. It has been a tradition of medicine that it always gives its service to the poor without question. Every year the doctors of this country give many millions of dollars' worth of service for the poor, getting in return for it only the experience and such prestige as comes from having one's name on the staff of a great charity hospital.

TABLE 2.—*Provisions of National Sickness Insurance Systems*

Nation	Services Furnished							Cash Provisions		
	General Practice and Specialist	Drugs	Appliances	Hospitalization	Preventorium and Sanatorium	Operations	Confinements	Day on Which Cash Benefit Starts	Reduction During Hospitalization	Relation of Cash Payment to Average Wage
Germany	Yes	Yes	Minor accessories only	Not legally but generally	No	Yes	Yes	4	50%	¾ with a maximum
Austria	Yes	Yes, except specialties	Yes	Yes (for 4 weeks)	Yes	Yes	Yes	Legally 4; usually 1	50% goes to family	60%
Bulgaria	Yes	Yes	Yes	Yes	Yes	Yes	Yes	1	40%	50-70%
Belgium	Yes	Yes	Yes	Yes	Yes	Yes	Yes	4	No provision	Varies
Denmark	Yes	Yes, ¾	Minor accessories only	Yes	Yes	Yes	Yes	1	Reduced to meet cost	Varies
Danzig	Yes	Yes	In part	Yes	No	Yes	No	3	50%	50%
Esthonia	Yes	Yes	Yes	Yes	Yes	Yes	Yes	4	Varies	50-66⅔%
France	Yes	Yes	Yes	Yes	Yes	Yes	Yes	6	Unmarried, 75%; married, no children, 50%; head of family, 33⅓%	50%
Great Britain	Yes; no specialist	Yes	Minor accessories only	Not legally but sometimes	Yes	No	Yes	4	No right to hospitalization	No relation to wages
Holland	No sickness insurance—but all risks are covered by accident insurance, except confinements							3	60%; sickness insurance not yet in force	Maximum 80%
Hungary	Yes	Yes	Minor accessories only	Yes	?	Yes	Yes	1	?	60%
Latvia	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Luxemburg	Yes	Yes	Minor accessories only	Yes	Yes	Yes	Yes	3	Unmarried, 75%; married, 50%	50%
Norway	Yes	No	No	Yes	Yes	Yes	Yes	3	Unmarried, 100%; married, 75-25%	Varies
Palestine	Yes	Yes	No	Yes	Yes	Yes	Yes	3	Unmarried, 100%; married, 50%	Varies
Poland	Yes	Yes	Yes	Yes	Yes	Yes	Yes	3	?	?
Sweden	Yes	Yes	Yes	Yes	Yes	Yes	Yes	1	100%	60% (proposed)
Switzerland	Yes	Yes	No	No; voluntary	No; voluntary	Yes	Yes	1	Varies	Varies
Czechoslavakia	Yes	Yes	Minor accessories only	Yes	Yes	Yes	Yes	1	50%	60%
Yugoslavia	Yes	Yes	Minor accessories only	Not legally; yes, practically	No	Yes	Yes	1	?	?
Greece	....	....	....	....	....	Medical service always furnished on first day of sickness				

TABLE 3.—*Provisions of National Sickness Insurance Systems*

Nation	Choice of Doctor			Professional Secrecy			Freedom of Prescription*			Usual Form of Payment			Satisfaction	
	Free Choice	Restricted	No Free Choice	Completely Respected	Not Respected Indirectly	Not Respected Directly	Absolute†	Regulated Not for Specialties	No Liberty; Lists as Permitted Drugs, etc.	Periodically by Territory	Per Head	Per Medical Act	Of Insured	Of Physicians
Germany	..	+	..	..	..	+	..	..	+	+ Part	+ Part	+ Schedule Part	No	No
Austria	In provinces	Vienna	..	..	..	+	..	..	+	+ Part	+	+ Part	No	No
Bulgaria	+	..	..	..	..	+	..	+	..	..	..	+	Yes	Yes
Belgium	..	Proposed	..	..	+ proposed	..	..	+	..	..	..	..	..	..
Denmark	In provinces	Copenhagen	..	..	+	..	+	..	..	+ City	..	+ Rural	Yes	Yes
Danzig	+	..	..	..	..	+	..	..	+	+ Part	+ Part	..	No	No
Esthonia	..	+	..	+	..	..	..	..	+	..	..	+	No	No
France	+	..	..	+	..	..	+	..	..	..	..	+	No	Yes
Great Britain	+	..	..	..	+	..	+	..	..	..	+	..	Yes	Yes
Holland	+	..	..	..	+	..	+	..	..	..	..	+	Yes	Yes
Hungary	..	..	+	..	..	..	..	..	..	+	..	..	No	No
Latvia	..	+	..	..	..	..	..	..	..	..	..	+	No	No
Luxemburg	+	..	..	+	..	..	..	+	..	..	..	+	No	No
Norway	+	..	..	..	..	+	+	..	..	..	..	+	No	No
Palestine	..	..	+	..	+	..	..	..	+	+	..	..	No	No
Poland	..	..	+	..	..	..	..	..	..	+ Part	..	+ Part	No	No
Sweden	+	..	..	..	..	+	+	..	..	..	..	+	No	Yes
Switzerland	+	..	..	..	..	+	..	..	+	+ In mountains	..	+	No	No
Czechoslovakia	..	+	..	..	..	+	..	..	..	+ Part	+ Part	+ Part	No	No
Yugoslavia	..	..	+	..	..	..	..	..	..	+	+	..	Yes	No

* Some replies are not specific.
† Except for flagrant abuses.

The reader who has been following this discussion probably realizes by this time that there is no perfect system of sickness insurance that has been worked out as yet in any nation. Even those who are most ardent in their desire to have some kind of a system in this country freely admit that none of the systems in use abroad would do for the American people. One of the reasons is the fact that Americans always like to choose their own doctors. A good many of the systems of sickness insurance that have been provided in foreign countries do not permit the man to choose the doctor whom he wants. Furthermore, after the sickness society or the sickness insurance system selects a doctor for him, the worker finds it rather hard to change to another doctor even when he and the first doctor fall out. After all, the relationship

Nowadays practically all of surgery and a good deal of medical care in serious diseases is carried out in the hospital. Frequently there may be no one at home to carry out the doctor's orders and to help in nursing the patient.

between doctor and patient is one of the most intimate of human relationships. In some ways it is even more intimate than the relationship a man has with his family. One of the reasons why American doctors have been opposing any form of state control over medicine is the likelihood that any system of state control will interfere with this personal relationship between the doctor and his patient.

American doctors are proud of the kind of service that they have been giving to the American people. They can point to the fact that our sickness rates and death rates are about as low as, if not lower than, those of most of the large countries of the world. They can point to the fact that an investigation recently made by the Bureau of Economics of the American Medical Association revealed the fact that there are few, if any, people in the United States really suffering for a lack of medical care. The mayors of a hundred cities of various sizes testified to the fact that there was no neglect of the poor because of their inability to pay.

Another reason why American doctors are somewhat opposed to these state or similar systems of sickness insurance is the fact that the quality of medical care rendered under such systems in foreign countries is far below the average quality of care usually given in this country. In most of these systems a doctor gets a list of about 1,000 to 1,500 persons whom he is supposed to look after when they are sick. He gets so much a person each year for the service. In addition, in many countries, he carries on his private practice on the side. Now doctors are only human! By the very nature of the circumstances there is a tendency to give less attention to those who come under the insurance system than to those who are directly responsible to the doctor for payment. When the doctor is directly responsible to the patient and the patient directly responsible to the doctor, the relationship is such that it is likely to yield the best type of service. It has been found, on the other hand, that the patient who comes in as an insurance patient is likely only to be asked a few questions and handed a bottle of liquid medicine or a package of pills and then to be told to come back again a little later. However, even the kind of medicine or pills that he gets is regulated by the laws controlling such systems. The state does not care to spend any more on him than it has to and it therefore limits the price of the medicine that can be prescribed. In a recent report of the insurance act in Scotland it was found that one patient had received about 800 pounds of boric acid ointment during a period of eight years, for a chronic skin disease that he had. There are also some pretty strong stories about sickness insurance doctors who come into their offices and ask all the patients with a cough to stand up. They get cough medicine. That kind of diagnosis, which may overlook a beginning of tuberculosis or pneumonia, is not a safe method of diagnosis for any self respecting citizen. When an American doctor practices such slipshod medicine, he is not likely to get much practice.

The Germans say that insurance service is always second class. The reason is, of course, that the leading doctors will not do this kind of practice. It is a system which aims to take in the lower third of the medical profession. For this reason it is frequently found that even patients who are on sickness insurance lists will go to an outside doctor and pay his fee when they think anything serious is wrong with them.

Of course the tying up of the sickness insurance with unemployment insurance in some

countries has multiplied the evils tremendously. It has caused patients to come to their doctors repeatedly for minor illnesses in order that they might get their unemployment insurance. It brings on malingering, which is faking disease, in order to get back some of the money that the people have paid in. Thus it is found that there is much more sickness among persons who are insured than among those who are not insured. Actually, of course, there is really no more sickness than there was before.

The social workers who are trying to promote sickness insurance systems in this country insist that there is an advantage in having the patient see the doctor often because then the doctor may find disease in its earliest stages. They claim that people in this country do not go to doctors with the earliest symptoms of disease, simply because they do not want to pay medical bills. There is, of course, a good deal to be said on both sides of this question. There are many doctors who practice under the insurance systems who take their work conscientiously and who try to study their patients. The whole trouble with this argument is the lack of facts available on either side of the question. If the people who favor sickness insurance could produce any figures to show that the insurance doctors have detected a great many more cases of Bright's disease, tuberculosis or cancer than are detected by doctors in this country, their argument would be better. On the other hand, the offices of insurance doctors are so crowded with people who have coughs and colds and stomach aches and pains in the back and headaches and the numerous minor illnesses of people who consult doctors when there is no special fee for the attention, that the doctors lack the time that is necessary to find the diseases of serious nature in their early stages.

Much of the talk about sickness insurance has been on the subject of reducing the costs of medical care. I have already pointed out that modern scientific medicine costs much more than saddle-bag medicine used to cost, and everybody knows that it is worth a great deal more. There is really no evidence that any sickness insurance system lowers the costs of medical care. One thing it does is to add to the tremendous personnel that I have already listed as engaged in helping out medical care—a tremendous burden of administrators who are in charge of keeping track of the cash and paying it out.

The biggest protests that have come from doctors in countries where these systems are in effect are those having to do with the official red tape. When the doctor finally gets through with his work, he sometimes has to sit down for hours to fill out the red, the yellow, the blue and green blanks and reports that are required. Instead of spending his time and using his brains for the special purpose for which he is educated, he becomes instead what the doctors who were in the army during the World War called an "ink slinger." It is not only the doctors who are enmeshed in this red tape but in addition all the other people involved in the care of the sick. In Germany there are more administrators and stenographers and clerks in the sickness insurance system than there are doctors. Whatever money is saved by systematic organization of medical care would seem to be spent on the organization itself.

Now there is another point which people ought to have clearly in mind. The extremely poor are not covered by any sickness insurance system. Doctors have always taken care of them in the past, and under sickness insurance systems that is just what they do now. It is probably what they will always have to do. Under our system of emergency relief in this country during the last two years, means have been worked out by the government to pay doctors to some extent for the care they give to the poverty stricken; but the money paid is infinitesimal in comparison to the costs of the service in time and effort, and it is definitely understood that this is an emergency measure. In a depression, of course, the doctors suffer as much or more than other people. Doctors' bills are proverbially the last to be paid. Indeed, the amount of money that the average doctor earns is not enough to cause a twinge of jealousy in the minds of most laborers. Actually, most skilled laborers make more in a year than does the average doctor.

The people who have been trying to promote a sickness insurance system in this country are telling the doctors that they are going to make more money for them under the new system. Possibly they will. In England the lower third of the profession found its income increased somewhat when the sickness insurance went into effect. A little later, however, when the financial emergency hit England, the authorities began to cut down the amount of money per annum, and the lower third of the doctors whose incomes had been improved suffered. At the same time, of course, the income of the private doctors was cut down because so many more people had been put on the sickness insurance lists. In England where only the actual worker and not his dependents are covered by insurance, the average income of the doctors who carry on insurance work is a little over $2,000 a year, and the doctor has to pay his expenses out of that. Such doctors are still allowed to have such private practice as they can get, but many of them do not get much. The panel doctor, as he is called, is paid a little over $2 yearly for each person and has to have 1,000 people on his panel to get $2,000. In the United States we already have so many doctors that the number of patients for each doctor is about 800.

I mentioned earlier in this article that this question of sickness insurance is being agitated more by social workers than by any one else. The vast majority of doctors do not want to practice under that kind of system. As far as I can find out, there has been no particular desire for the system voiced by organized labor. The industries and the manufacturers are being so much troubled with taxation and with the problems of unemployment insurance and old age pensions that they do not seem particularly interested in putting over any systems of sickness insurance. The American Legion, which represents a tremendous number of men in this country, has recently voiced its opposition to all socialistic, communistic and similar experiments.

A famous sociologist once said that sickness insurance is the panacea offered by politicians for social unrest. The advocates of sickness insurance in this country have been mostly social workers and philanthropic foundations headed by social workers. In their work the social workers see much poverty and sickness in homes. It seems reasonable to believe that their pity has blinded them to many significant factors involved in this situation. After all, medical care is a doctor's problem. Nobody but a doctor knows how to take care of the sick; in fact, nobody but a doctor is fitted by training and education and licensed by law to take care of the sick. Even Harry Hopkins, the administrator of relief under our present Administration, has said that no system of sickness insurance can be put over in this country unless the doctors want it. It seems certain that the vast majority of doctors do not want any state system of medical care for the American people. This does not mean that doctors are opposed to the principle of insurance as a method of payment for hospital care or as a method of payment for the costs of sickness. It does mean, however, that the quality of medical service and the prevention of disease are the most significant factors in the situation. Doctors will be opposed to any state or federal system of insurance for governing the costs of medical care that will tend to lower the quality of the service rendered.

At the meeting of the American Medical Association, which is an organization of more than 100,000 doctors in this country, some definite principles were set forth to guide the American medical profession in its relationship to these problems. These principles are simple. If they are followed in setting up any system of medical practice, they will protect the interests of the people and they will maintain the quality of medical care. They will permit doctors to continue to exercise some initiative in the study of disease and they will put the control of medical practice in the hands of the only group who really know how medicine should be practiced. These ten principles reiterate much that I have already said in this article. They are:

First: All features of medical service in any method of medical practice should be under the control of the medical profession. No other body or individual is legally or educationally equipped to exercise such control.

Second: No third party must be permitted to come between the patient and his physician in any medical relation. All responsibility for the character of medical service must be borne by the profession.

Third: Patients must have absolute freedom to choose a legally qualified doctor of medicine who will serve them from among all those qualified to practice and who are willing to give service.

Fourth: The method of giving the service must retain a permanent, confidential relation between the patient and a "family physician." This relation must be the fundamental and dominating feature of any system.

Fifth: All medical phases of all institutions involved in the medical service should be under professional control, it being understood that hospital service and medical service should be considered separately. These institutions are but expansions of the equipment of the physician. He is the only one whom the laws of all nations recognize as competent to use them in the delivery of service. The medical profession alone can determine the adequacy and character of such institutions. Their value depends on their operation according to medical standards.

Sixth: However the cost of medical service may be distributed, the immediate cost should be borne by the patient if able to pay at the time the service is rendered.

Seventh: Medical service must have no connection with any cash benefits.

Eighth: Any form of medical service should include within its scope all legally qualified doctors of medicine of the locality covered by its operation who wish to give service under the conditions established.

Ninth: Systems for the relief of low income classes should be limited strictly to those below the "comfort level" standard of incomes.

Tenth: There should be no restrictions on treatment or prescribing not formulated and enforced by the organized medical profession.

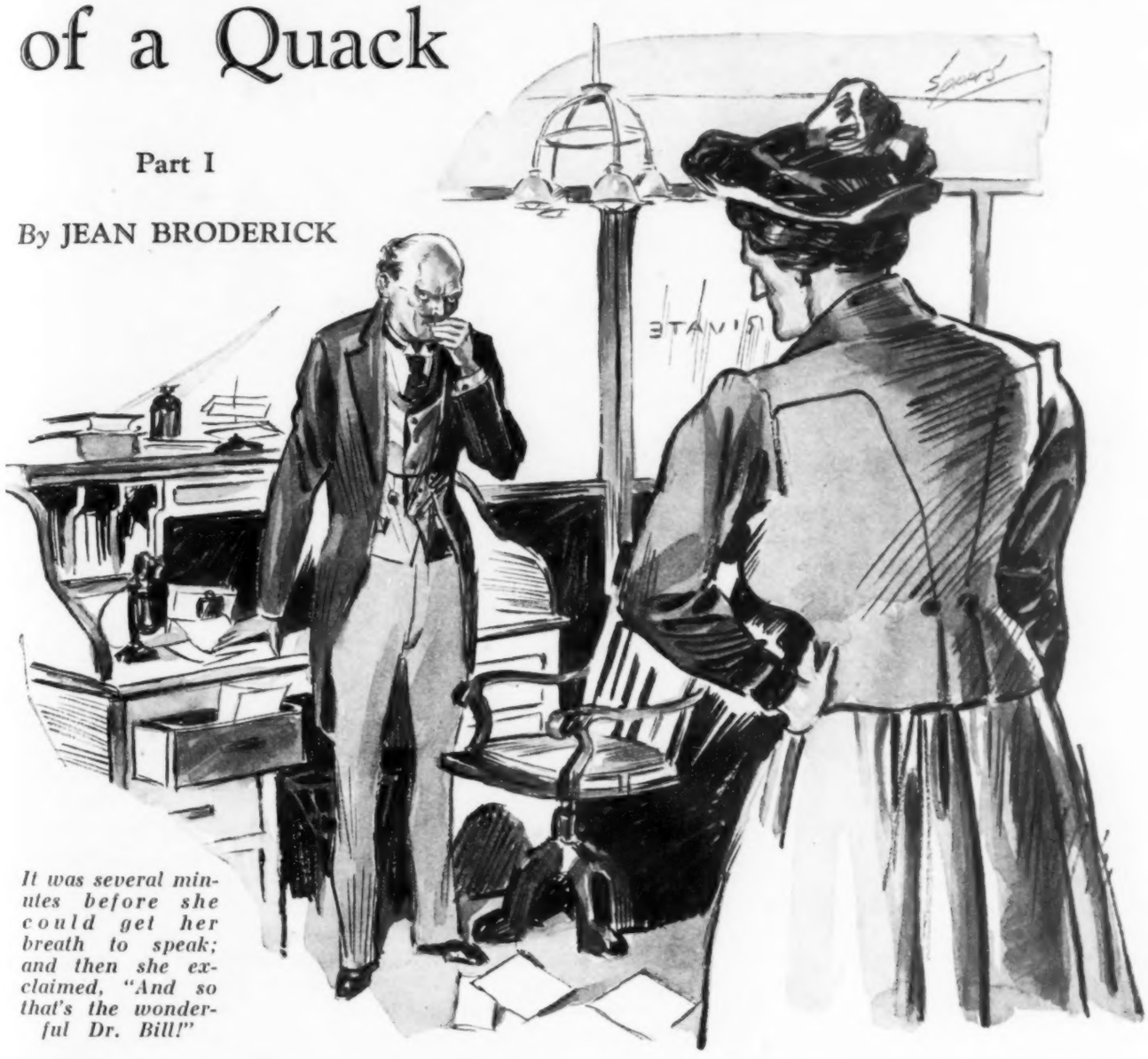
All over this country right now experiments are going on in counties, in cities, in relationship to hospitals and in relationship to industry, whereby people who are organized in small groups are working out systems for saving against the costs of hospital care and against the costs of sickness. The medical profession has never objected to such experiments provided they are carried out in such a manner as to protect both the patient and his doctor against exploitation and to maintain the quality of medical service. Out of these experiments several systems and plans will probably come eventually which can be extended to other communities and other industries of similar character.

The doctors have recognized the necessity of giving to all the sick the right kind of medical care. They have always done it in the past, and there is no reason to believe that they will fail to do their duty and to maintain their ideals in the future.

The Making and Unmaking of a Quack

Part I

By JEAN BRODERICK



It was several minutes before she could get her breath to speak; and then she exclaimed, "And so that's the wonderful Dr. Bill!"

ABOUT thirty years ago charlatanry was running free and easy in the United States, menacing honest enterprise, undermining established professions and playing fast and loose with the health, the lives and the pocketbooks of the people. At that time, when I and other medical pirates were sailing the high seas of quackery, we boldly displayed *caveat emptor* at the masthead, entertained no qualms of conscience and showed no mercy. The sick, the infirm and the crippled were our prey and, aided by the postal facilities of an indulgent government, we went after them. Quacks were quacks in those days.

Unusual circumstances placed me among the quacks. Because of a consolidation, I lost my position as traveling salesman for an electrical manufacturing company. I returned to my home in a small city of the Middle West to think matters over and to select my next occupation. That sounds strange in these make-work and doleful days, but then, when the jobs were hunting the men, I had every reason for thinking that I shortly should get desirable employment which would enable me to quit the road and to have more hours with my family.

Among my friends was an undertaker, a public spirited citizen whose place of business was on the main street, with whom I consulted frequently and in whose reception room I occasionally sat to watch the passersby. I was sitting there alone one evening in November, my friend being away, when I observed a man walking slowly and hesitantly before the win-

After all these years, I still can see him pacing to and fro in the typists' room, a picture of vicarious suffering.

dow and looking in. Finally, as if having mustered courage, he entered and asked to see the proprietor. When told that the owner was not in, the stranger explained that he was looking for work, having been recently removed as teacher of a country school. He was a young man of about my age whose straightforwardness of speech and manner won my confidence. Surmising that he was hungry, I sympathetically took him to supper; and before we parted, I had pledged myself to find something for him to do.

Through circumstances growing out of this chance meeting, this former country school teacher, whom we shall call Duggins, a few years later quit the quack medical business with a fortune that commercial agencies estimated to be worth $750,000. As a consequence of my accidental acquaintance with him, I had my fling in the medical game from which I retired unceremoniously with nothing to show for my labors except experience and the questionable right to use ex-diagnostician after my name, both of which qualifications I afterward discovered were absolutely valueless toward getting along in the world.

On the day after I met Duggins, a neighbor who was employed by a railroad company remarked that he was having difficulty in getting a man to work in the freight house. I immediately thought of Duggins who had told me that he was willing to do anything. My apologies to him for thinking of him in connection with such work were wasted for he grabbed the job with the avidity of a bass seizing a minnow. He proved to be as strong as a horse, was intelligent and made an exceptional laborer.

Word came to me a few weeks later that two Michigan men were in town seeking a location for a medical company and looking for an office manager. I was not in the least complimented that I had been recommended for the position. The suggestion that I might enter the medical field struck me as too ludicrous for serious consideration. The men from Michigan, who were not doctors in any sense of the word, did not impress me favorably; and when they virtually admitted that they had moved from Michigan because the legal heat there had become too intense for comfort, I wanted nothing to do with them and their enterprise. However, I casually mentioned Duggins to them, as the thought occurred to me that possibly he might prefer office work, even temporary and undesirable, to toil in a freight house. He rejoiced over what he termed an opportunity to become a "doctor," for to be one, so he said, had been "a hankering since boyhood."

The partnership of the Michigan men soon ended; it was reported that they disagreed over which should do the drinking for the company and that one withdrew in preference to having his liberties curtailed. As the surviving partner found much relaxation in social pleasures, the task of keeping affairs going fell on Duggins, who gladly shouldered the responsibility and worked with an energy that brought prosperity to the business but ruin to its owner. The latter faded from the picture, and it was generally understood that he had been lured away by the fantasies of the poppy. This left Duggins, former country school teacher and freight house rustler, in sole possession of a going concern. Duggins had learned enough about the medi-

cal business to see the money-making possibilities in it. He visioned a bigger company, which should enter general practice and not confine itself to the doctoring of a few specific diseases as the old company had been doing. He deemed it advisable to have a graduate physician in the organization; such an associate would provide it with a name, professional standing and the atmosphere of regularity. I never learned where and how Duggins found the doctor he obtained. By no chance could the selection have been made by a plan of competition or a process of elimination. This doctor was about 5 feet tall in his high heeled Congress shoes, weighed not much more than 100 pounds, was bald and beardless, and had a voice that sounded like a toy whistle in a fog. However, he possessed a diploma, whether from an accredited school of medicine or from a diploma mill I do not know, and that was the important qualification. Let us call him Dr. Bill.

The artistry of an unsung genius dressed Dr. Bill for presentation to the world. This picture, as shown in the company's advertisements, was that of a kindly physician whose robust proportions, luxuriant beard and heavily thatched head radiated vigor and inspired confidence. With a live doctor on the premises, with an idealized physician in the advertisements and with a medical diploma on the wall, the Dr. Bill Medical Company was set to carry its message to suffering humanity and to harvest the dollars.

It was at this stage in the development of the company that I joined the plundering forces of quackery. When first approached, I declined the offer made to me and contended that the business was foreign to my qualifications, training and inclinations. But Duggins was insistent and, in beseeching me, swore by all that is holy that the business was going to be conducted in a strictly legitimate manner. "Ethical" was the word he used by way of assurance and, in substantiation, he explained that Dr. Bill would give personal attention to all the cases and that the medicines would be prepared by the world's leading pharmaceutic companies, according to formulas approved by the medical profession. Dr. Bill, so Duggins confided, could not be entrusted with the secretarial work; therefore my services were required. Furthermore, the remuneration was excellent. I finally accepted.

In my opinion few men have souls so calloused that they can confess crime, fraud and chicanery without having an urge to offer some word or circumstance by way of extenuation for their misdeeds. The foundation of my defense for becoming a quack was laid far back in the early ages when medicine and magic were one and the same thing in the mind of primitive man. My ancestors kept alive this idea and handed it down to me. I believed firmly in the efficacy of medicine per se and had unquestioning faith in the potency of charms. If the recording lobes of my brain were examined now, I believe that the faint tracings of my reasoning then, when deciphered, would be found to read: Medicine cures. I am a salesman. Therefore it is right that I sell medicine to cure the sick.

And so, with a background of unpreparedness, superstition and ignorance I audaciously donned the bestained robes of quackery and entered into a work in which I was to diagnose carelessly the ailments of tens of thousands of men, women and children and haphazardly prescribe medicine for their treatment. I recklessly became a co-sinner in the gigantic Dr. Bill medical fraud which swept the country like a tidal wave, with a backwash that reached all parts of the world.

The Dr. Bill Medical Company was off to a flying start. "I can cure," piped the little doctor in the company's offices. "I can cure," reassured the wise looking and hope inspiring physician whose imagery was a trade-mark. "I can cure," shrieked the black type of our advertisements. There were no exceptions in the list of diseases that Dr. Bill proclaimed he could cure. It ran the entire gamut of nosology. Possibly our first advertising campaign was a bit presumptuous for an unknown medical company, but it brought results that fairly swamped us. It was new and queer work to me, but I took hold of it with enthusiasm. Although I was only an embryonic quack, more than once I saved the dignity of the young concern. I recall how Duggins, who was helping with the correspondence, persisted in using the word emancipated for emaciated. When this weakness was called to his attention, he seriously explained that he was such an ardent admirer of Abraham Lincoln that invariably he used emancipated for all words resembling it in form. The doctor was too lazy to consult the dictionary and required much assistance in his correspondence.

Not only was our mail business booming, but visitors were arriving from neighboring towns and cities to advise with the newly discovered medical wonder whose name was being cried from the housetops. It was not in accordance with the rules of the game, as it was played by medical companies at that time, to permit contact between a chief of staff and the patients. Consequently we kept Dr. Bill under cover. He was much more impressive in concealment than he would have been on exhibition. The girls in the front office were instructed to tell those who asked for him, "I'm very sorry, but Dr. Bill is out of the city, having been called to Philadelphia on an important consultation."

By such subterfuge it was made to appear that Dr. Bill was participating almost daily in a momentous consultation in one of the big cities of the country. This we regarded as wonderful publicity.

But one day we had a visitor whose purpose could not be diverted by a glib excuse. She was a large, well dressed woman who did not request but demanded to see Dr. Bill. When the customary lie was recited to her, she went through the office force as a fleet halfback goes through a broken field to a touchdown, not stopping until she reached the door on which was painted, "Dr. Bill. Private." After a momentary hesitation she entered his office without knocking.

"Is this Dr. Bill?" she asked dubiously.

Dr. Bill, rising to his full height and bowing with great dignity, answered, "It's me, madam. What can I do for you?"

Instead of answering his perfectly natural question, the woman broke forth in peals of laughter which echoed through the building and brought several of us to the scene to find out what had broken loose. It was several minutes before she could get breath to speak; and then she exclaimed, "And so that's the wonderful Dr. Bill!"

The little doctor had taken his chair and was cringing behind his flat topped desk, appearing, and no doubt feeling, more insignificant than usual.

"That! That!" our visitor continued between paroxysms, pointing a finger at the doctor. "Well, the joke's on me. I'm cured." Whereupon a prospective patient walked out, exemplifying the grave danger of letting a medical company's doctor meet his patients face to face. Here was one surprising recovery which the company could have credited honestly to Dr. Bill but which was never mentioned in its advertising.

From the day I began working for the company until experience had answered my question, I was uneasily curious regarding testimonials. I could not believe that a new enterprise such as ours could succeed without the stimulating influence of professed cures to support its claims. However I was soon to learn that obtaining testimonials was an easy task of the business. I observed that when patients felt improved after starting treatment, the improvement probably being due to change in diet or to favorable weather conditions, they frequently would write to us to express their gratitude. They actually were voicing their hope and faith. Even with my childlike trust in the curative powers of medicine, I could not understand how long-standing cases of tuberculosis, cancer and paralysis could respond so favorably to only a few days' treatment as these appealing letters made it appear. It was absolutely brutal to publish confidential communications of this kind, but it was done.

Most of our testimonials came from persons whom we designated as tightwads but who probably would be known today as chiselers. Many of these were medicine addicts who were constantly on the lookout for some new preparation. After they had taken a few doses of a Dr. Bill medicine they suspected that they had met it before or they heard of something newer, and their enthusiasm for Dr. Bill suddenly waned. Being wise to the game, they knew that they would receive further treatments, collect on delivery, so they would notify us that they were cured and, in their eagerness to get out of their bad bargains, they gladly testified to recovery from everything from housemaid's knee to leprosy. If Duggins ever paid for endorsements, he was spending money needlessly.

One of the most remarkable testimonials received during the early days of the company was that of a West Virginia woman who, in well chosen words and excellent penmanship, announced that Dr. Bill had cured her of consumption. She told us that noted specialists of the East had pronounced her case hopeless but that in less than two weeks Dr. Bill had restored her to perfect health. Here was a letter of far too great value to a growing medical company to be lost among ordinary testimonials. Therefore Duggins had a facsimile made of it and ordered thousands of copies to be printed. Thereafter we put a copy into every letter we sent out. We learned afterward that the writer of this exceptional tribute to the ability of Dr. Bill was a patient in a hospital for the insane and that she never had had the slightest trace of tuberculosis; but this discovery did not embarrass the Dr. Bill company in the least. We continued to use the testimonial until the generous supply was exhausted.

After telling us our medicines had benefited him, a man in Tennessee asked whether we had anything to stop falling hair. If Dr. Bill knew of any such remedy, he had failed to use it on his own head and neglected to include it among the more than forty preparations he had gathered under a single roof. But we did carry in stock some small tubes of salve which we sometimes included in our "catarrh treatments." I sent a tube of this salve, costing about 3 cents, to the Tennessean. In my letter to him, Dr. Bill was made to say that he had especially compounded the contents of the tube to meet the exigency of the case. The package was accepted, and the charges of $15 were paid. We were advised later that the specially compounded remedy had done the work.

During my first months with the company, Dr. Bill was a constant source of amusement to me. There was no doubt about the fact that he took himself seriously. After all these years, I still can see him pacing to and fro in the typists' room, his head bowed as if in deep thought, his small hand stroking his smooth cheek and troubled brow, a picture of vicarious suffering. Watching him parade the aisle between the clicking *(Continued on page 1144)*

Where Ice and Sun Bring Work and Fun

Othmar Rutz

The Scotch sport curling is a popular pastime at St. Moritz, Switzerland.

Cy. La Tour

The cutting and storing of natural ice mean both thrills and hard work for many in our rural communities.

J. Gaberell

This tiny girl of Andermatt in central Switzerland graduated from her first walking efforts directly into skis.

Ewing Galloway

A universal favorite among winter sports is ice hockey. The picture to the right shows a match at Davos, Switzerland.

She untangled the string of toys and fastened them on the tree while Dick took the other gifts out of the sack. Her hands were trembling.

Seeing

"DICK, old boy, this is great!" The doctor from Huntsville beamed up from the sheaf of case histories he was devouring, stretched out a long leg in the direction of his brother's polished desk, thought better of it just in time and used a convenient footstool instead. "You've come in big, and you deserve it."

Dick Wharton turned in his swivel chair.

"Thanks a lot, Tom," he responded. "It's a dog's life, though. Eye work is about as nerve racking a job as a man could pick."

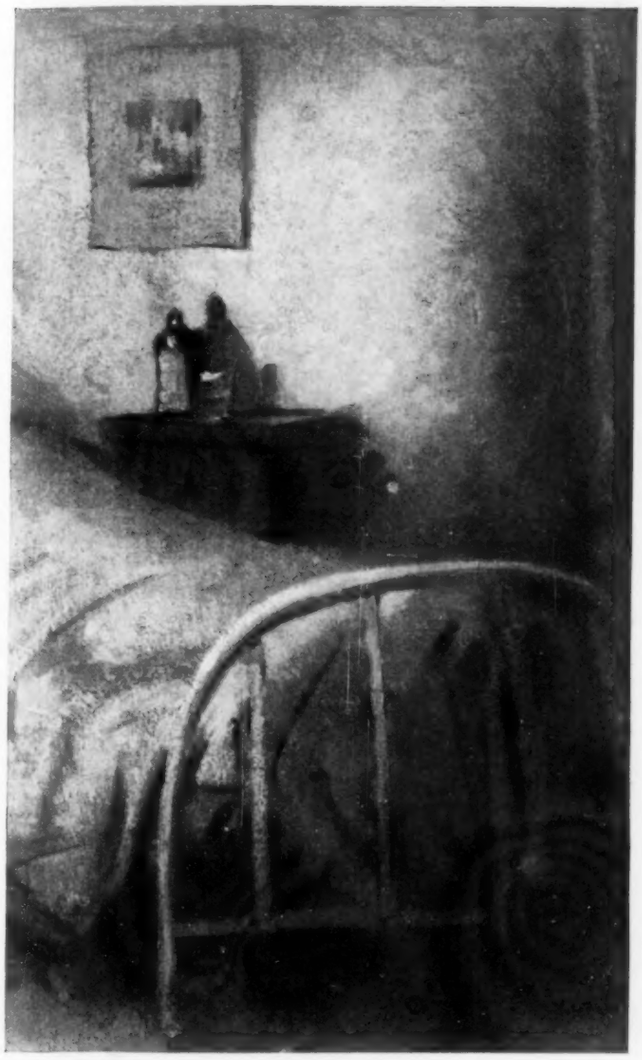
"You certainly have drudged, Dick. You haven't even taken time off to get married. Not many men get where you are at 36. You ought to be married, though. Nothing like a home and a wife to smooth down the raw edges. How about that little blue-eyed night nurse, Miss Wayland? Alice is her name, isn't it?"

"Still on duty at the hospital, I believe." The younger man reached for his dictaphone. "Excuse me while I get these letters off. Be through in a couple of seconds."

Tom Wharton feasted his eyes briefly on the details of his brother's luxurious office and then glanced over a few more of the case histories. Here was a convergent strabismus; cured. A senile cataract; cured. He would ask Dick about operating on the cross-eyed Babbitt boy and on old man Thompson's cataract. Somewhere among these histories he had noticed one he wanted to see again; it concerned a child successfully treated for cataract. He thought of the little blind girl at Lumber Creek and wondered whether or not Dick could do something for her. He searched through the histories again.

Before he found what he wanted, he realized that Dick had finished his dictation and was telephoning. His voice was curt.

"No," he was saying, "I can't do any dressings today. I haven't time and I can't help what I



Christmas

promised. No, you'll just have to kid him along. No, tell Miss Sadler she'll have to wait, too. I'm going away for Christmas." He snapped the receiver back on its hook.

"I'm through," he announced in a tone of relief. "I brought my traveling bag to the office. We'd better get started before some one else thinks of some fool thing to want."

Tom extracted himself from the easy chair.

"I've got to stop a minute on Broad Street," he said as he handed over the case histories and watched his brother deposit them in a bulky file. "Thought I had everything, but I forgot to look for the Christmas angel for the Laurel Fork Sunday School. They're having a Christmas tree Thursday night and they want one of those angel things for the top of the tree. Nice pleasant face, you know, and a pair of big gauzy wings. O, yes, there's something else. I was about to forget Zeb Hankins. Wonder if I've lost that sample!"

He hunted through his pockets and brought to light a sample of gray, flowered silk.

"Zeb and his wife nearly had a fight," he explained. "He parked his pipe on her Sunday dress and burned a hole in it, and now they're tryin' to think of some way to be nice to each other. I got myself into it by tellin' him to buy some stuff for a new dress and put it on the tree for her. I told her to get him a new pipe, so I've got to attend to that, too."

"Tom, do you mean to tell me that you waste time on people like that? They'll pester the life out of you if you let them."

"I know." Tom's voice was mellow with apology. "But it seems different out there in the mountains. Little things have a way of seeming big and important."

On Broad Street Tom stopped to make his contribution to the Salvation Army fund. Dick, too, thrust a bill into the kettle.

"I'm glad you wheedled me into spending Christmas with you, Tom," he said. "There isn't much sense in the fuss people make over Christmas, but it's like a cup of coffee, it's harmless and stimulating. I need a stimulant. I've been on a grind till I feel like a fossil."

"You'll see a real Christmas this year. Those kids of mine are live wires. They kind of put me in mind of us, Dick, when we were boys."

It was easy to find the dress and the pipe for the conciliating pair, but Tom was hard to please in the matter of the Christmas angel.

"I never thought anybody'd give me a job like this," he complained whimsically as he inspected an assortment of angel faces. "I'm at home at delivering babies, but when it comes to finding a good-looking angel, I'm a flop. They all look like show girls to me."

"I wouldn't let it worry me," counseled Dick, much amused.

Tom continued the search, however, and his quest was at last rewarded. In a window, hovering gently over a Christmas display, was an angel that satisfied his esthetic taste. She had delicate white wings, tenderly expressive blue eyes, and quite real looking, blond-brown hair. There were a few formalities. The proprietor of the shop had to be consulted before she could be removed from the window.

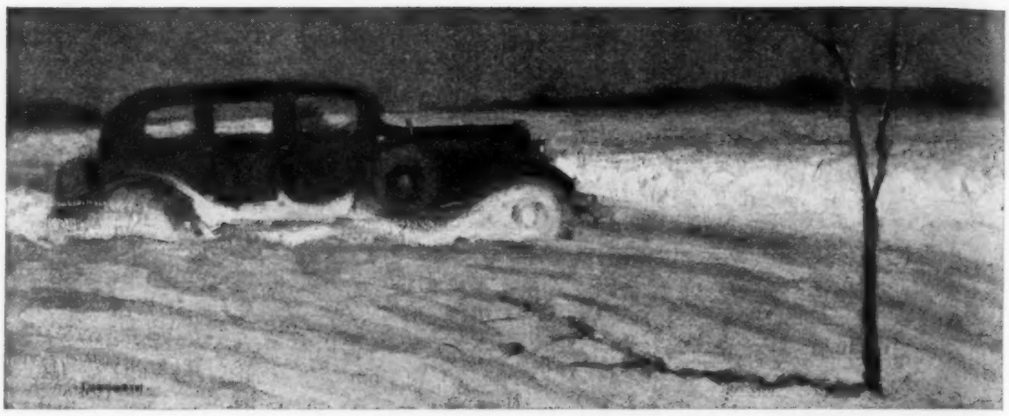
While they were waiting, Tom said suddenly, "Dick, that angel looks like somebody—like Alice Wayland!"

"Like fun!" ejaculated Dick in supreme annoyance.

Before starting on the three hour drive, Dick decided to run by the hospital to see whether all was right to leave.

He was met by an anxious intern and by an even more anxious surgeon. A serious accident case had just been brought in. Dick examined

By EUGENIA DOYLE



When they entered the car, Dick volunteered to drive. It would rest him in a way and it would be a help to Tom who had driven all the way down that morning.

swiftly. One eye was ruined, the other badly injured by bits of flying glass from a shattered windshield. Prompt operation was imperative.

"Looks as though we'll still be here when Santa makes his rounds." Dick's tone was light, his manner placid, but Tom sensed the eagerness under the calm exterior. He knew what was gripping Dick. Any doctor would have recognized it, the challenge of human need, the demand that comes to him over and over again and is part of his daily life.

Tom had heard much of Dick's steady nerve and of his amazing skill. He had always wanted to see his brother operate. This time, however, he told Dick that he would wait outside.

He went along as far as the wash-up, met Dick's assistant and watched the two slide into their white suits and caps. Some friendly bantering was exchanged, something was said about the new cars, then Dick and his assistant crossed the hall to the brilliantly lighted operating room where nurses in close caps and gauze masks were arranging shining instruments on white-draped tables. The assistant was giving his hands the final soaking, a nurse was holding up a sterile gown for Dick to put on, and then the heavy doors were drawn shut. A few minutes more and Dick would begin his fight for a man's last chance against blindness.

Tom walked to a window at the end of the hall and sat in a roller chair. It would be quite a while, he knew, but he wanted to be in sight of those operating room doors. He felt the same tug at his heart as he felt for his own cases. Dick would win, though. Dick was a wonder.

The sky was gray and starless. Occasional big flakes of snow were spattering down. He hoped it would not storm before they got to Huntsville, but anyway he had remembered to bring his chains. The street below, which had been pleasantly crowded with shoppers, was now quiet. Lights twinkled in the distance.

Once or twice a nurse came out of the operating room, crossed the hall and went back again on some errand. Tom breathed a prayer for Dick. "Help him, God, any time he needs it."

Some one was coming up the hall, a nurse; it was the night supervisor. Tom had met her several times when he had brought patients to the hospital. He had heard two years ago that she and Dick were engaged. Something must have happened to the romance. Too bad. Miss Wayland was sweet and just the girl for Dick. She was quiet, pretty and not too young either.

She turned on a light and in the sudden brilliance she would have passed for a Christmas angel, a capable sort of angel with a perky, white cap and shining blond-brown hair drawn smoothly over her ears. She did not recognize Tom at first but was intent on getting the visitors out of the hospital for the night.

"Are you a relative?" There was sympathy in her voice, and little birdlike overtones.

"I'm waiting for Dick, Dr. Dick Wharton, you know. I'm the other Wharton, his brother. I'm counting on taking him home with me for Christmas."

Her cheeks grew pink, and Tom thought he saw a hurt look, a defensive glimmer, in her blue eyes. He wondered which of them had broken the engagement. Not Dick, his good sense told him. Well, if the old boy only knew it, there might be a chance for him yet.

She quickly recovered herself. "Oh! Dr. Wharton! Of course I know you! How is Teddy Burgess?"

"Fine! He's running around everywhere now. Old Jim Stevens, too. Both of 'em say they'll never forget you. How's Dick getting along in there?" He gestured toward the operating room.

"I'll find out."

She did not go inside the operating room but spoke to some one at the door. Presently she came back with the message that the surgeons were nearly through; they were putting on the bandages. She was in a hurry and had to run along.

Dick came out tense and tired but satisfied that he had saved the eye. He gave Tom the details while he was dressing, and they stopped by the eye wards on their way out.

The operative patient had been put to bed and was in good condition. A glance at the charts assured Dick that his other patients were doing well.

As they passed the door of a recovery room, a child's voice called out, "Dr. Wharton! Izzat Dr. Wharton?"

"Yes," Dick answered briskly as he and Tom paused in the doorway.

"Look at my Christmas tree, Dr. Wharton!"

"O yes, yes, indeed. It's a beauty."

The little tree was a beauty. It was roped to the bedpost and was resplendent with red and gold and silver trimmings, with here and there a gay package.

"Please, Dr. Wharton—?"

"Yes?"

"Can't somebody take off my bandage so I can see Christmas like you promised?"

"No, Sandy," Dick's tone was firm. "I want to take off that bandage myself and I haven't time tonight. I'll be back in a day or two. The tree will keep that long, won't it?"

"Ye-es, I reckon it will. I'd like to see it on Christmas day, though. Some of the children's ward kids is comin' to see it Christmas Day. The nurses fixed it for me."

Tom was inspecting the tree. Turning, he discovered some one behind the door. She looked like a Christmas angel, a startled Christmas angel wearing a perky, white cap and holding a rope of tinsel in her hand. Her face was pale.

"Miss Wayland!" Tom boomed out heartily. "You're so small we nearly overlooked you!"

It was evident that Miss Wayland had hoped to be overlooked. She managed a wan smile, then stooped to pick up a silver star.

Dick bowed politely in her direction. He consulted his watch and turned to Tom.

"It's 8:30," he announced. "We ought to get in by midnight if we hit the road now."

When they entered the car, Dick volunteered to drive. It would rest him in a way and it would be a help to Tom who had driven all the way down that morning.

After a silence, Tom suggested cigarets. He lit one meditatively. "Dick," he began, "d'you know what I'd do if I were you?"

"What?"

"Marry Alice Wayland."

"Talk sense!" retorted Dick fiercely and drove his speed up to 70.

Tom chose a safer topic. He asked Dick about the cross-eyed Babbitt boy, about old man Thompson's cataract and then about the little blind girl at Lumber Creek.

"I'll be glad to look 'em over," agreed Dick. "The girl at Lumber Creek sounds like a case I have right now, that boy with the Christmas tree. If I'd known you were interested, I'd have taken off the bandage tonight. Congenital cataract. The boy could see fairly well until he was 3 or 4 years old, then his vision was gradually obscured."

"You're sure of the result?"

"O, yes, he'll be all right."

"I kind of wish you had taken off his bandages. Seems like he had counted on 'seeing Christmas'."

"Reckon I should have. But children are easy to please. They get a kick out of looking forward to things. He'll enjoy it as much one time as another."

"Maybe you're right. My kids have been like a couple of whirlwinds for a week."

The roads were of dirt and were narrow, with occasional startling curves, but a vast improvement since the days of his father's practice with horse and saddle-bags, Dick was thinking. Tom had come as his father's assistant, had taken over the practice at the old doctor's death and, it seemed to Dick, had inherited many of his father's characteristics. Half an hour before they reached Huntsville, Tom took the wheel.

"There's a bad turn around Dixon's Hill unless you're used to it," he explained, "besides, I have a few packages to deliver, and I know where the mail boxes are."

One of the deliveries was a pair of skates for Clint Perry. Tom told Dick something about Clint.

"Fine little chap, but his folks are worthless. I noticed him the other day watching the other boys skate. Just happened to think of him when I was buying skates for my kids."

He had bought a toy tea set for Clint's little sister, a box of tobacco for an old man he called "Jim" and a bundle of quilt scraps for some one he called "Aunt Sally."

It was late when they reached home. The house was dark, but there were Christmas wreaths in the windows and a brightly garnished tree in the reception room.

"Jessie said to wake her," whispered Tom, "but likely she's tired out. We can find something to eat in the pantry and then we can finish the tree. It's trimmed and there's nothing to do but bring the presents in and put them on."

Tom had been lavish in his buying. There were books and skates and bob sleds, cowboy suits, games, a tool kit and a construction set.

"Almost too much for a couple of kids," murmured Tom apologetically as he carried in the last box and opened it. There was an assortment of small toys—airplanes, bouncing balls, trumpets, reindeer, a climbing monkey, a twittering canary and a crowing rooster. "To jolly up the tree," explained Tom, and the two Christmas artists promptly used them for this purpose.

When they had finished, they tiptoed back to Tom's office for a smoke.

The telephone jingled. Tom's voice, encouraging, unruffled, gave directions for treating a croupy child. No, it would not be necessary for him to come. But the mother was frightened and insistent. All right, he would run up there anyway. Before *(Continued on page 1140)*

The Meals

YOU CAN go into a museum and gaze with awe on the voluminous dresses that your great-grandmother wore and marvel at the chair tidies she crocheted and the leather picture frames she made. You can see there, too, the few books that graced her parlor table; they were sober, weighty books highly improving to mind and morals. The very rooms in which people lived a hundred years ago have been recreated for us.

But on the meals they ate a century ago, history books are silent. People never stopped to record so familiar a thing as what they ate for breakfast. Indeed life was such a hurly-burly, exciting affair in 1833 that there was little recording of any sort.

However, from the yellowed pages of letters and diaries we do learn that food was plentiful and cheap and that our great-grandmothers must have spent most of their time preparing huge meals for their lusty families. Vitamins were unknown in those days, and the word "calories" had no relation to food. With kingly appetites the family sat down to meals that would amaze and horrify the family doctor of today.

In her fascinating book, "Society in America," Harriet Martineau, a traveler in our country in 1837, has left a record of some of the meals served to her. A breakfast to which she sat down, but of which she surely did not make a clean sweep, consisted of "corn bread, buns, buckwheat cakes, broiled chicken, bacon, eggs, rice, hominy, fish, fresh and pickled, and beefsteak (as a sort of afterthought)!"

After a breakfast such as that, it was thought that a light repast of cake and wine at 11 o'clock would stay the stomach until the grand meal of the day at 2 o'clock. Miss Martineau, a spinster lady of unimpeachable honesty, gives the following amazing menu for a company dinner down in old Alabama: "Soup, roast turkey and ham, a boiled fowl here, a tongue there. Then succeeded pies of apple, squash and pumpkin, custard and preserves of pineapple, peach, limes, ginger and every sort of plum. Dispersed about the table were shelled almonds, raisins, hickory nuts, and to crown all large blocks of ice cream. During this dinner a tall slave stood at the corner of the table, keeping off the flies by waving a large bunch of peacocks' feathers fastened in a handle." After such a dinner one wonders how they gained an apptetite for the 6 o'clock supper "served on trays passed around —tea, ham and sweet cake." But lest the stomach should feel empty at bedtime, "cake and wine were offered at ten o'clock."

Miss Martineau was a clever and learned lady, and she felt sure that there was some relationship between the heavy meals and the "spare forms and pallid complexions of the women." She was a born reformer and could not help remarking, "I should like to see a reform in diet tried with a view to the improvement of the general health. I should like to see hot bread and cake banished, a diminution in the quantity of pickles and preserves and also in the quantity of meat eaten. I should like to see the effect of making the diet of children more simple." One has a whimsical wish that the earnest Miss Martineau could revisit this land and see the "effect of making the diet of children more simple."

Another visitor of that day, Frances Trollope, the mother of the novelist Anthony Trollope, poked fun at the manners and customs of the time in her book "Domestic Manners of the Americans." She spoke well of the public markets and the cheapness and abundance of food in Cincinnati, but American cookery was damned with faint praise.

"In relating all I know of America I certainly must not omit so important a feature as the cooking," she wrote. "The ordinary mode of living is abundant but not delicate. They consume an extraordinary quantity of bacon. Ham and beefsteak appear morning, noon and night. In eating, they mix things together with the strangest incongruity imaginable. I have seen eggs and oysters together, ham with applesauce, beefsteak with stewed peaches, salt fish with onions. They insist upon eating horrible half-baked hot rolls both morning and evening. The flour of Indian corn is made into at least a

# of Yesterday

dozen different sorts of cakes, but in my opinion, *all* bad. They are extravagantly fond of puddings, pies and all kinds of sweets."

Poor Mrs. Trollope, fresh from the ways of London drawing-rooms, was much riled by the crude manners of pioneer life in the "Queen City of the West" in 1830. One can imagine her, after a fatiguing morning spent in marketing and in trying to transform a gawky country girl into an English servant, going out to a dinner as a guest and eyeing with sardonic disgust the horrible half-baked rolls, the salt fish with onions or the beefsteak with stewed peaches.

Mrs. Trollope does not tell us whether she ever suffered at a banquet, but banquets that put our modern modest affairs to shame were given visiting notables in those far off days. Minnigerode, in that delightful book of his, "The Fabulous Forties," tells of a dinner given in honor of the Prince de Joinville by the corporation of the city of New York in 1841. Three hundred guests made heroic inroads on the mighty feast of "two kinds of soup, two kinds of fish, turkey and chicken, nineteen entrées, roast beef, lamb, duck, goose, guinea hens, quails, partridges, seven kinds of vegetables, twelve pastries and desserts, four kinds of cake, nine varieties of sweet entrements followed by coffee, liqueurs and—toothpicks!" Ah, there were giants in the land in those days. Meals like that have gone the way of Roman feasts and of sailing boats and hoop skirts. "Let be, they are one with all things that have been."

The modern housewife, preparing a hasty lunch on a shining modern gas range, with the electric ice box purring at her elbow, her pantry shelf filled with fruits and vegetables from the sun-kissed gardens of California, does not know how lucky her great-grandmother would consider her. In the old-time kitchen there was no ice or running water or gas. Back and forth stepped the cook, carrying heavy iron pots from blazing stove to table, trying to keep the flies from falling into the soup and wondering why her 2 year old child had the stomachache all the time.

Not until 1841 was water pumped into New York City from the Croton reservoir. An old number of *The American Gazeteer* gives us this quaint description of New York's old water system: "Most of the people were until lately supplied every day with fresh water conveyed to their doors in casks from a pump near the head of Queen Street which receives it from a spring almost a mile from the center of the city. This well is about twenty feet deep and four feet in diameter. The average quantity drawn daily from this remarkable well is 110 hogsheads of 130 gallons each. Water is sold at threepence a hogshead at the pump."

No wonder that dishes were washed in a handful of water and that the Saturday bath was a sacred rite! One feels certain that the women showed even more fervor than the men in the grand celebration when finally the pure water of the Croton was piped into New York's kitchens.

In 1830 there were no refrigerator cars loaded with fresh vegetables and fruits coming to the markets of the city. All vegetables or fruit the family had in the winter were home canned over a boiling hot cook-stove during the blazing summer days. Winter diet was liable to be heavy and monotonous, and the first "mess of dandelion greens" in the spring was hailed with joy. The children did not relish so much their spring dose of sulphur and molasses! Without ice or screens it was hard to keep milk sweet or food fresh, and little children suffered with summer complaint and other intestinal troubles. There was little or no understanding of how to feed children, and the poor, anxious mothers, ignorant and careless, had trying times with sick children.

Gluttons may sigh with envy when they read of the meals of that day, but housewives and mothers will shudder. There is no sentimental regret in their minds for "the good old days." They are thankful that machinery and science have set them free from drudgery so that they may be something more than cooks.

By INES S. MACAULAY

SMILEY BLANTON Discusses

The Psychology of the

THE MIDDLE years, from 40 to 50, are dangerous years. Changes occur in the glands, in the heart, in the blood vessels and in the muscles. No matter how often the man or woman of 45 or 50 says, "I feel just as I did when I was 20 and I am able to do just as much as I did then," this is not the case. Some of the resilience of youth is gone, and although great endurance may remain, the years have taken their toll and one must bow to them. However, if the mind and body make the proper adjustment at this time, you who are in the middle age may look forward to many years of health and strength.

Physical adjustment in the middle years is extremely important. Psychologic adjustment is equally important. It is an unhappy fact that many persons of middle years are depressed, unhappy, full of anxiety or even ill because of a lack of psychologic adjustment. They are physically sound and may live for two score years, but there is little satisfaction for them, oppressed as they are by morbid fears and anxieties.

Youth so often "sails for islands in the air" and has "impossible" and "illusionary programs" of life that it is of little wonder that the middle years are often psychologically bank-

The fear-ridden business man who takes few holidays and who even finds an excuse to go to the office on Sundays is often found in the middle years.

Middle Years

rupt with no illusions left; an ever changing, interesting world is met with unseeing or melancholy eyes.

To be adjusted happily during the middle years, it is usually necessary that the habits and attitudes of successful living are formed before the age of 20. Most of the psychologic problems that are met in the middle years, therefore, are caused by maladjustments, unwise handling or poor discipline during infancy, childhood and adolescence. However, much can be done even in middle age for the maladjusted.

Many middle-aged persons are depressed because through early training they have lived in a dream world and now, after forty years, they must face life as it is. Their reaction is one of depression, of sadness and of melancholy. Such persons must be trained to face facts, to realize that, although there is suffering and pain and distress in the world, nevertheless something can be done about it, and that there is often more than one way of looking at the same problem.

Another common cause for depression is an inner feeling of inadequacy, insecurity, fear or guilt. These attitudes are formed in childhood and are buried deep in the unconscious mind. It is only through the technic of psychologic medicine that the cause of these attitudes can be found and the individual given a wholesome and well rounded view of life.

Another type of person is one who has been so loved and so carefully shielded in childhood that he expects every one in the world to play the part of a tender and loving parent. When he leaves the parental roof, he finds the world quite otherwise than he supposed it would be. He is not always praised for meritorious work; not always does he receive his just desserts. In fact, the reward for good work is often criticism and scorn.

An example is that of a young college instructor who had been tenderly nurtured and who unconsciously expected every one to be just as kind and gracious and understanding as his own parents had been. He presented a plan to the dean for a new course that was much needed. It was worthy of consideration, but the dean was old and hidebound and cynical and resented the suggestions. The instructor became discouraged and disgruntled, even ill. It was only after some half score of years that he learned he could not expect the persons with whom he dealt to be loving mothers and fathers, and that no matter how hard he worked, some persons would dislike him, some would be unjust to him and some would always be unkind.

Sometimes, however, persons in this situation become bitter and full of hate. They allow the attitudes of others so to influence them that their whole outlook is twisted. They meet hate with hate, scorn with scorn and criticism with criticism. Often this so saps their energies that they really do become ill and if not ill their energies are depleted by useless emotional conflicts.

The anxious fear-ridden business man is often found in the middle years. Such men usually devote themselves completely to their work. They take few or no holidays. They even find an excuse to go to the office on Sundays. They view new methods with suspicion. They have no hobbies and no diversions outside of their work. Cards are a bore. Golf is contemptuously called an old man's game. They read few books. They feel a sense of irritation toward the younger men who are crowding

them with new ideas and new methods. They either grow fat from too much eating and too little exercise and have high blood pressure, or they grow thin and nervous and suffer from insomnia. The real basis of the difficulty is a fear of their own capacity or their own virility. They usually end with a nervous breakdown in which they are sent off for a trip which they take rather reluctantly and which they do not enjoy. What such men need is a new philosophy, a new outlook and a hobby. They need to appreciate their own capacities. They need to realize their own ability.

Another type is made up of men who have never learned to use money wisely. They either save or spend foolishly. This attitude toward money is really a symptom of a fundamental fear of their capacity and an indication of a deep, often unjustified, feeling of inferiority.

Such is the case of a man of 50 whose income, although reduced from what it formerly was, is still adequate. He worries unjustifiably, for fear that his business is going to fail; he makes such a fetish of saving money that his family suffers from a lack of the fundamental necessities of life. Although able to pay promptly, he pays his bills two or three months late, so that his credit is poor. He is nervous, suffers from insomnia and can talk of nothing but hard times. He is so nervous that he can hardly sit still for five minutes at a time. He makes life miserable for his family and is avoided by his former friends. A physical breakdown surely awaits this man if the psychologic strain is not removed.

Women not only undergo a marked physical change between 40 and 50, but have to undergo, as well, a serious psychologic adjustment. Especially is this true in women who, as Margot Asquith says, "have dedicated themselves to their children or their children to themselves." An example is that of a mother who devoted herself to her two daughters. Even while they were in college, she spent her time making their clothes, doing their laundry and worrying over them. She had no life of her own, she read few books, she dropped her relationships both in social clubs and in the church. Her husband was a busy man, and she saw little of him. After the daughters had married, she was left with empty hands and empty heart.

During middle age almost every one has physical disabilities of one sort or another. These disabilities can be treated with a reasonable amount of care or they can be exaggerated into serious psychologic illnesses. In this case, the mother, because of her unhappy mental state, complained of such serious symptoms that an operation was performed. No grave condition was found, but the operation started a helpful train of events. The husband, faced with the serious illness of his wife, became more interested in her and gave more time to her. The members of the club to which she had once belonged called on her, and when she was well she resumed her membership. The members of her church were so kindly and so helpful that she once again became an active member of the congregation. Geared back into social life again, she was no longer lonely, unhappy and despairing. Her health improved, her fatigue from which she had suffered disappeared and she was again able to lead a satisfactory life.

Perhaps an even better way of handling such a situation was that accomplished in the case of another woman who found herself out of a job because her four children had left home and no longer needed her. She was happy for a time in the companionship of her husband to whom she was devoted, but his sudden death left her in a bad psychologic state. She suffered a complete nervous breakdown and was bedridden for several months. One day while she was at her worst, she was visited by a psychiatrist who realized that the patient needed some new stimulus to bring her out of her illness. He showed her an illumined manuscript that he had with him and suggested that she might try to do this work. She accepted his suggestion and began. Soon she became so interested that she studied medieval history and became an expert in tapestry work. From this she went into etching and through these hobbies and occupations she was able to pull herself out of the slough of despondency and illness into which she had sunk.

Preventive medicine has succeeded in controlling or eliminating such pests as smallpox, tuberculosis, malaria, yellow fever and typhoid and has so prolonged life that more and more persons are living through the middle age and beyond. This has been a great achievement, but it is now the problem of psychologic medicine to make the lives of these persons successful, to help them to achieve a contented spirit and to give them a flexibility of mind which will enable them to meet the new changes while retaining that which is worthy and of good repute in the old ways.

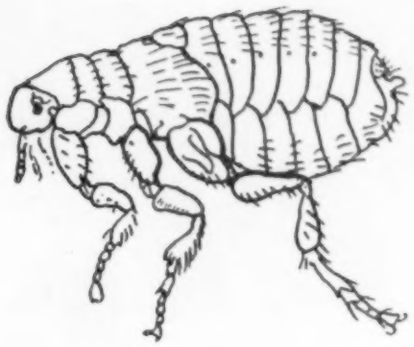
The most important thing in achieving this result is to train the child in infancy and adolescence to see life as it really is and not so to coddle him with affection that he can never face harsh reality.

When the training in childhood has not been adequate, when the middle-aged person suffers from fears, depressions, marked feelings of failure and inadequacy or views life with suspicion and hate, it is the privilege of psychologic medicine to help such a person to gain a new philosophy and a new understanding of life. Instead of feeling that life is over at 40 or 50, he may then say with the poet Browning, "Grow old along with me, the best is yet to be."

The FLEA

Chapter VII of

Our Parasites



By CLAUDE LILLINGSTON

THE FLEA belongs to a well defined group of insects, classed in three main families, Sarcopsyllidae, Pulicidae and Ceratopsyllidae. The Pulicidae are of greatest personal interest to us, as included in this family are most of the known fleas, notably those that prey on man, on rats and on other mammals. Although there is an almost infinite variety of fleas, they all conform to certain common habits and structural peculiarities. They are all wingless, and both the sexes of every variety are provided with mouth parts modeled with the object of piercing the skin of the host, whether he is bird or mammal, and sucking his blood.

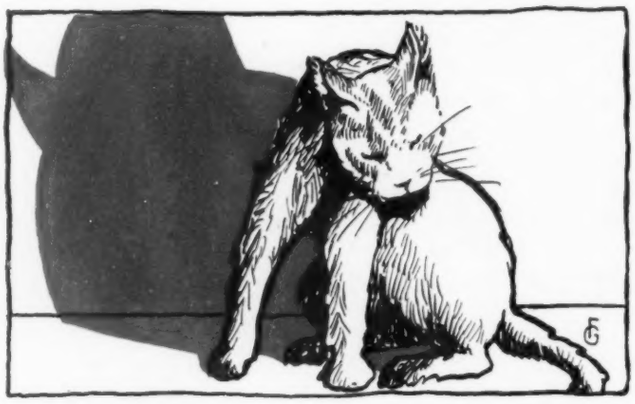
In the past, the flea has been the object of much fantastic misrepresentation. It is not clear what there is about it to evoke such flights of the imagination, but it is certain that many of the qualities and achievements with which it has been credited are frankly libelous. It does not, for example, become a grandparent within twenty-four hours, nor can it jump higher than 8 inches. That is so far the record, vertically. The record for horizontal jumps is only 13 inches. Claims of jumps exceeding these records should be received with the greatest reserve. There is also a popular belief that fleas are the chief source of entertainment for monkeys, who are supposed to vary the monotony of life in a cage by hunting the flea on themselves and on their neighbors. According to Russell, no fleas have been found that are truly parasitic on monkeys. It is not the flea that the captive monkey seeks with such meticulous care, but little scraps of scurf, the peculiar flavor of which seems to please the monkey's depraved palate. The flea has falsely been credited with the capacity to climb up a smooth, dry surface, but this surface must be moistened if the flea is to secure adequate purchase for its feet.

The flea's anatomy consists of a head, a chest, or thorax, and an abdomen. It is much compressed laterally, so that when held between finger and thumb, its sides are pressed against each other. This flatness of the flea, and its much greater dimensions from the dorsal to the ventral surfaces, can easily be demonstrated by rolling the flea gently between finger and thumb. The peculiar flattening of the flea greatly facilitates its unobtrusive movements among feathers or the hairs of its host. Because of the hardness and elasticity of its outer covering, considerable pressure can be put on the flea without permanent crippling. The legs, as is to be expected from the flea's saltatorial habits, are powerfully developed.

The female flea deposits her eggs in her host's home, whether it is a bird's nest or a rat's hole, but never on the host himself. Unlike the egg of the louse, which is securely cemented to some hair or thread, the flea's egg is cast adrift from the moment it is laid, and is not attached to any particular object. The egg is visible to the naked eye, especially on a dark background, and is easily found in the bedding of a dog or a cat; when the eggs are numerous, they suggest fine white sugar in appearance. It is common for from 2 to 6 or more eggs to be laid at a time, and a single female flea may lay from 300 to 400 eggs during her lifetime.

There are four distinct stages in the life cycle of the flea: egg, larva, pupa and adult. The larva hatches out from the egg in from two to four days, according to the temperature. The larva is most active, and it is quick to take cover in any dust or débris it can find. Its appetite is voracious, and it shows no nicety of discrimination in the choice of its food. Anything will do, from dead flies to particles of dried blood which some adult flea may have passed through its own alimentary canal almost unchanged. With the help of a pair of powerful jaws, this whitish, legless, eyeless, hairy larva scavenges around for several weeks. Patton and Evans have carried out some amusing experiments with the larva in a tray of sand, feeding it with dried fecal particles, combed out of a dog's hair and sprinkled on the sand. The larva found them in an incredibly short time, nibbling at them, softening them and then swallowing them. When these dried particles consisted of undigested blood, the translucent body of the larva assumed a bright red or a dark color.

The larva punctuates its three larval stages by molting twice. Having reached the third stage, it seeks a suitable spot where it spins a loose meshed cocoon, in which it curls itself up



to become a pupa. Minute particles of all descriptions tend to collect on the cocoon, which thus becomes an inconspicuous bit of dust. Although it does not take any food during this phase of its existence, the pupa undergoes important internal changes until, with the cracking of its outer case, it emerges a full grown flea.

Each species of adult flea has its own particular host, but several species are rather impartial in this matter, wandering from dog to man, for example, and back again with facile adaptability. In northern China the human flea, Pulex irritans, is said to live normally on the dog and to take human beings merely as a pastime and avocation. In Europe, however, this species is much truer to the rôle allotted it, that of living on man. In Madras the cat flea has no objection to feeding on dogs and human beings.

This lack of discrimination in fleas who will not confine themselves to the hosts to whom they properly belong is of enormous importance in the case of the plague flea, Xenopsylla cheopis, which readily feeds on man in the absence of its normal host, the rat. The flea common to man differs from the plague flea found on the rat in the length of its sojourn on its host; it visits him only to obtain blood, preferring to roam elsewhere in the intervals between meals. The rat flea, on the other hand, prefers to spend most of its time on its normal host, and when the rat dies of plague in the neighborhood of human beings, its plague-infected flea not only visits man but stays with him, feeding on him two or three times a day.

A study of the table manners of the flea under a binocular microscope has yielded some curious observations. A preliminary investigation of the skin is made with the maxillary palps; the head is applied to the skin, and the abdomen is tilted up. With a rapid to and fro movement, the cutting apparatus is thrust into the skin and, at the same time, saliva is poured into the wound. The blood is then sucked up if the flea is satisfied with its first boring operation, but sometimes it wanders about and bores at several different points before pumping itself full of blood.

The flea bite has a characteristic appearance; it has a minute central red spot surrounded by a circular pink patch, the color of which gradually merges into that of the normal skin. This reaction is provoked by the presence of the flea's saliva in the wound. While the skin of some persons is most sensitive to flea bites, practically no mark is left on the skin of other persons. The antipathies and incompatibilities on the one hand and the affinities on the other, as between man and flea, are familiar facts, although there is no explanation for them.

In 1897, Ogata suggested that the rat flea was probably concerned in the transmission of the bacillus of bubonic plague to man. In the following year, Simond successfully transmitted plague bacilli from rat to rat by means of their fleas. These experiments were confirmed later by other workers, one of whom succeeded in conveying the bacillus from one rat to another by means of fleas indigenous to man, the cat, the dog and the European mouse. The problem was so important at this time that a special commission, known as the Indian Plague Commission, was appointed to investigate the rôle of the rat and the flea in the transmission of bubonic plague to man. Two of the most important observations of this commission, which conducted an exhaustive series of experiments, were that plague does not spread among rats in the absence of fleas, and that the intensity of an epidemic of plague among rats is directly proportional to the number of fleas among them.

Much has been learned about the ways and varieties of fleas since the days of the Indian Plague Commission, the members of which were familiar with only one species of Indian rat flea. The investigations of Rothschild have since shown that there are several species of fleas living on the Indian rat. The manner in which the flea transmits the bacillus of plague from rat to man is not uniform. There are, in fact, several different ways. A plague flea, interrupted in the act of feeding on a man or on a rat suffering from plague, may infect its mouth parts and carry the infection to a healthy man or rat when feeding again after a short interval. A flea may also infect itself with bacilli while feeding on a man or a rat suffering

from plague and may pass these bacilli out in excretions; when these fall on to the skin of a healthy host, he aids infection by rubbing them into his tissues in the act of scratching. There are several other ways in which the flea succeeds in conveying plague to man. It should be noted in passing that other rodents such as the ground squirrel may be reservoirs of the plague bacillus as well as the black rat and the brown rat.

At least eleven different species of fleas have been found to be carriers of the bacillus of plague, and as many as eight of these different species are associated with the rat. It has been calculated that the stomach of a single flea is capable of holding as many as 5,000 plague bacilli while the flea is sucking the blood of a plague-infected rat. Both the male and the female flea carry the infection and may remain infected for several weeks.

Other diseases besides plague may be conveyed by the flea; among these are trypanosomiasis, kala azar, and a certain disease associated with anemia. The flea is also the intermediate host of the larval stage of the common tapeworm of the dog. The egg of this tapeworm is eaten by the larva of the flea, in whose alimentary tract it hatches out. Here it lives, moves and has its being throughout the larval and pupal stages of the flea, and the adult flea inherits this guest from its pupal phase. The life cycle of the tapeworm is happily completed when such an infected adult flea is eaten by a dog.

A flea which belongs to the family Sarcopsyllidae and which is commonly known as the chigger, Tunga penetrans, behaves in a most extraordinary way and is a veritable pest to man in the localities it frequents. It is a parasite of the pig in South America. It has been recently introduced into eastern and western Africa, and during the World War it was responsible for much suffering and loss of man power in the East African campaign. As soon as the female flea is fertilized, she attaches herself to the skin, burrows into it, and swells, with the help of the eggs inside her, to the size of a small pea. The spaces between the toes are a favorite site for her operations, which provoke such scratching and subsequent septic sores that in some cases the foot must be amputated.

As far as bubonic plague is concerned, fighting the flea means fighting the rat, and the campaign against the rat deserves a whole paper to itself. While rats and mice and other undesirable hosts must be exterminated as far as possible, the problem varies in cases in which domestic animals, such as the dog and the cat, are concerned. A 3 per cent solution of creolin in water is a useful spray or wash for such animals. After such treatment it is well to wash this disinfectant out of the fur to avoid irritation of the dog's or cat's skin. A badly infested room may be temporarily rid of fleas by sealing

it up and burning sulphur in it; 4 pounds to every 1,000 cubic feet may be used.

When such fumigation is not practicable, a useful alternative is flaked naphthalene, 4 or 5 pounds of which is sprinkled on the floor before the room is sealed for a few hours. The floor is then swept free of naphthalene and dead fleas; the housewife who has a frugal mind will store the naphthalene in a box or wide-necked bottle for similar use on some other occasion. Pyrethrum may be used as a substitute for naphthalene.

Solutions of gasoline or kerosene may be used to spray floors and walls, and heavy casualties can be inflicted on the flea population in this way. When a ramshackle building is badly infested, these operations may require such frequent repetition that the owner prefers in the end to burn it or pull it down.

Ordinary fly paper does not attract the flea by itself, but it can be made deadly by the exploitation of one of the flea's little idiosyncrasies. The flea simply cannot leave a moving object alone. In order to catch and hold numberless fleas, therefore, some person or animal has only to walk about in a flea-infested room with fly paper attached to the legs. This principle is applied in China by covering a cylinder with fly paper which is protected by a perforated outside cylinder. This is made to roll on the floor of an infested room, the flea occupants of which are quick to seize the opportunity for a free ride.

Undoubtedly, the best way to deal with the individual flea is to stalk it with a cake of soap slightly moistened; but slightly moistened cakes of soap are not always available. It is also difficult to use the piece of plate glass, several inches square, which a specialist in fleas has recommended; the glass is dabbed on the spot where the flea is felt biting, and the flea is detained there till it can be dealt with at leisure. A more drastic measure is to follow Dr. A. E. Shipley's advice to turn one's garments inside out over a bathtub or a wash basin full of water; the betting is that the flea will leap into a watery grave.

[NOTE.—In the January 1935 HYGEIA, Dr. Lillingston's topic will be "Two Common Intestinal Worms."]

Physical Examinations

The First Article in a SYMPOSIUM on

From the Medical Point of View

By Herbert B. Wilcox

ONE CANNOT always tell how a child is or feels by merely looking at him. He may often look pale and show a loss of appetite solely because of moderate fatigue. Pallor does not always mean poor blood. It is more often the result of poor circulation and too little blood in the fine vessels of the skin. It is the most commonly seen evidence of lowered bodily vigor.

Under such conditions, doctors are often asked for iron tonics. The wise doctor, who looks into the situation carefully, will probably decline to administer a tonic, for he may find that some error in the child's general management requires correction or that the condition results from some cause that was not suspected by the parent.

On the other hand, a child will frequently be slow about showing evidences of a real difficulty already under way. A mother sometimes feels, without definite reason, that the baby is not quite right; and on taking his temperature she is surprised to find it considerably elevated, although the child had not seemed feverish or ill but had merely been slightly flushed.

These facts make it plain that, in addition to seeking advice concerning acute illness, it is rather necessary from time to time to check up on the general condition of children in order to be assured of their complete health or warned of their particular needs. The human body may begin to run down at the heel from easily avoidable causes long before any definite evidences of trouble are seen. Many of the minor ills from which babies and children suffer can be avoided if a little foresight is used.

Most babies are normal at birth and will develop normally unless some accident or disease comes along to interfere. We know that a good many babies have developed normally even in spite of what is now considered poor care. The Indian papoose usually grows tall and straight in spite of having been long strapped tightly to a board. The Italian baby, swathed as he is, ordinarily acquires the free, graceful use of his body that is so common to his race.

We must not depend, however, on this tendency to be well in spite of everything. We must take pains to find the things necessary to make each child more fit and must inform ourselves as to how to keep him fit. This is being done to a great extent, as is shown by the fact that today the baby at birth has just twice as good a chance for long life as he had before preventive medicine taught us proper methods of living and gave a means of preventing unnecessary diseases. One no longer hears of a large number of illnesses and deaths from intestinal disease. This has been avoided through dissemination of knowledge concerning the importance of clean milk and the use of substitutes for fresh milk.

Only one-half as many babies die during the first year as died twenty-five years ago. There is a constantly increasing number of diseases that can be avoided by simple means. Infants need no longer cry with the pains of scurvy; children need no longer grow up with the bowed legs of rickets. Few people are scarred by smallpox. Typhoid and diphtheria are easily avoided today.

Health is, however, a strictly individual matter. We are all different. Some persons need exercise, while others need rest. One must be pushed ahead and another held back. These differences are best appreciated by careful examination of the individual.

We drive most safely if our automobiles are periodically inspected and given what they are found to need in the way of water, gas and oil. The same care is even more important for the growing human being because he is constantly changing in size and bulk and activity in his passage from infancy to childhood and to maturity.

It may be asked, "Why examine an obviously well baby to find out whether he is well? Surely if he does not show signs of illness, he may be considered normal. Why *(Continued on page 1142)*

HEALTH and DISEASE

From the Structural Point of View

By Miriam T. Sweeny

WHAT is a physical examination? What does it show? Why is it needed?

First of all, a physical examination is not necessarily medical. It is a check-up on the bodily framework and its alinement. It ascertains how the body is hung together and the condition of the muscles which control it in motion and at rest.

Such an examination is for the purpose of finding out how you use your body, whether correctly or incorrectly, whether you are doing things with the minimum of effort and the maximum of result or whether with the maximum of effort and the minimum of result.

For example, do you stand poised in balanced equilibrium and move about easily without fatigue, or do you stoop, stand on one leg or shuffle along, fagged and ungainly? Do your feet hurt? Do you turn them out, and is there a bulge on the inner side near the ankle; or do they parallel each other with good upstanding arches? Do you run your shoes down at the heels?

This reminds me of something that happened back in the days when blouses were buttoned up the back. I was walking down Fifth Avenue on a warm day, the sort of day when coats are left at home. I saw ahead of me a well dressed woman; and as I walked behind her, I saw that her shoes were run down at the heels. Poor thing, I thought, some one should tell her how to use her feet when she walks. As I went along, continuing to think of some of the things that she could be told, I suddenly noticed that her blouse was unbuttoned the entire length of her back. I felt that I must at least tell her of this. So I screwed up my courage; and coming alongside, I said gently to her, "Pardon me, but your shoes are run down at the heels!" From that day I vowed that I would never try to "neat-up" anybody. But that was a long time ago, and I have changed my mind.

To go back to the physical examination: Does your back ache? Which part of you enters the room first, your head, your stomach or your chest? Does your neck have a hump at the back where fat collects? Do your shoulder blades show their edges? Is one shoulder higher than the other? Does your back round over at the shoulders and curve forward in the lower part? Is your backbone in the middle of your back all the way down, or does it bend sideways in one or more directions?

Are you tall and thin, or are you short and fat? If you are tall and thin, it is harder for you to resist the pull of gravity, and you need help in the line of proper body building. If you are short and fat, it is much easier for you to hold yourself straight because there is not so much higher up to control.

Do you on the whole present a picture of energetic enthusiasm or one of jaded boredom?

These are the things that are discovered by a physical examination. Also you will be told why they exist and what to do about them.

This kind of check-up will not reveal whether or not you have heart trouble, tuberculosis, a sluggish liver or anemia; but it does go hand in hand with the medical examination, and together they give the whole picture of your physical make-up, which should be the basis for advice as to what to do to assure a better chance for health and well being.

Whatever affects the body affects the mind and the vital organs, and vice versa. Maladjusted bodies function against great odds mechanically. This causes tension and friction, which in turn result in fatigue, which lowers resistance to disease.

So find out whether your old "Model T" shows signs of wear or whether you are the proud possessor of a "chassis" that together with all its inner workings is well oiled, greased, polished and in order. If it is not, get it so; if it is, keep it so.

[NOTE.—In the January HYGEIA this symposium will be continued with a discussion on the "occupational diseases" of children.]

The Problem of Anemia

Century-Allen

Just as the engine can burn its fuel only if air, or the oxygen in the air, is present, so the human body also burns its tissue fuel by oxidizing it.

By GEORGE BAEHR

EVERY schoolboy knows that the human body, like an engine, must produce its heat and energy by burning fuel. In the engine the fuel is carbon in the form of coal or oil; in the human body it is carbon in the form of carbohydrate, fat and protein. Just as the engine can burn its fuel only if air, or the oxygen in the air, is present, so the human body also burns its tissue fuel by oxidizing it. In both instances almost identical chemical changes result. In the engine or furnace the carbon in the coal or oil is combined with the oxygen of the air to form carbon dioxide; heat and energy are produced, and the carbon dioxide gas escapes up the chimney. In the human body the oxygen of the air similarly combines with the carbon of the tissue fuel to form carbon dioxide which is exhaled through the lungs, and the remainder of the waste products are discharged through the kidneys.

Now what has all this to do with anemia? Oxygen in the air is drawn into the body by the lungs and from the lungs it is transported by the blood to the tissues of all parts of the body. In the red blood cells is a reddish, iron-containing material, hemoglobin, which is able to take up oxygen as the blood circulates through the lungs and later to give it off again as the blood circulates through the tissues. In severe anemia, the number of red blood cells and the amount of hemoglobin in the blood are much reduced, so that the transportation of oxygen from the lungs to the tissues is deficient. As a result, persons who suffer from severe anemia are cold and weak and lacking in energy. The shortness of breath from which they suffer is an expression of the body's demand for more oxygen. Of course if the anemia is severe enough and nothing is done to correct it, the patient may die. Death is caused by a slow asphyxiation for, although air can be freely drawn into the lungs, the transport of oxygen by the blood to the tissues is inadequate.

Anemia is caused in one of three ways: (1) by direct loss of blood by hemorrhage, (2) by destruction of blood within the body by disease or (3) by inadequate rebuilding of blood because of defective digestion or assimilation of certain chemical ingredients found in food and needed in the composition of hemoglobin or of red blood cells.

When anemia is the result of the direct loss of blood by hemorrhage, arresting the bleeding is usually followed by prompt recovery. The normal person is able to rebuild and restore the entire amount of lost blood within a few weeks or a month after the hemorrhage has been arrested. If the hemorrhage has been severe, blood transfusion will save life in an emergency. It will also shorten the period of recovery.

If the anemia is the result of the progressive destruction of blood within the body by some disease, the underlying cause must be discovered and eliminated if recovery is to take place. Blood transfusions are only temporarily palliative and are not curative. The commonest diseases which may cause anemia by destroying blood are chronic infections in any part of the body, cancerous growths, and blood diseases such as leukemia.

The third cause of anemia is by far the most common and until recent years it was the most baffling type to treat. This is the anemia that results from the inadequate rebuilding of hemoglobin and red blood cells. In every normal, healthy person about 3 per cent of the red blood cells are replaced each day. The outworn red blood cells are removed from the blood and destroyed by the spleen, the chief wrecking plant of the body. Exactly this number of new red blood cells, about 3 per cent, are rebuilt each day and poured into the blood by the production plants in the bone marrow. In this manner the normal person gradually renews his entire blood in the course of a month.

One of the greatest wonders of life in all animals who have circulating blood is the perfect balance which exists between the amount of new blood formed every day and the rate at which outworn red blood cells are normally destroyed. As soon as the loss is increased, the rate of blood regeneration in the bone marrow immediately speeds up. But if increased production cannot keep pace with an excessive loss, in other words if the body is too great a spendthrift, anemia results. Also, if the sources of production and replacement are dried up, anemia is sure to follow. The results of a disturbance in the balance of supply and demand are as inevitable as the laws of economics.

If a person suffering from anemia has never had a hemorrhage, if examination of the stools shows that he has no intestinal worms or bleeding from the bowel, a careful examination by a competent physician may likewise serve to rule out such blood-destroying conditions as a chronic infection, a cancer or leukemia. Having excluded all these possibilities, one then has the right to conclude that the anemia is not due to loss of blood or to destruction of blood but that it is caused by the fact that the daily rate of blood replacement is below the normal.

The finding of certain characteristic changes in the blood and other laboratory tests will add support to the diagnosis of deficiency anemia. Still more interesting and important is the fact that the examination of the stomach contents of patients with deficiency anemia reveals in most instances that their stomachs have completely lost the ability to secrete acid. In fact it is now known that the total absence of the secretion of gastric juice is the primary reason for deficiency anemia.

Persons whose stomachs have permanently lost the ability to secrete acid need have no digestive disturbances and they can retain their normal state of nutrition and health. In the absence of gastric digestion, the digestion of food in the small intestine seems to be fully adequate for all purposes except for the needs of the blood-building apparatus. Apparently digestion in the stomach does something to food which intestinal digestion cannot do. It liberates iron in a form in which it can be absorbed into the body and built up into hemoglobin by the bone marrow. It also liberates another substance from meat which is needed by the bone marrow for the formation of red blood cells. For this reason, the anemia which develops from a lack of either of these two substances is known as a deficiency anemia.

Even in the absence of acid in the stomach, anemia does not develop in every case, for the body holds on to its store of iron and other blood-building materials most tenaciously and continues to reuse them for years, sometimes

indefinitely. If a deficiency anemia should develop, it will make its appearance only in adult life and, curiously enough, chiefly among women. In men large repeated hemorrhages are uncommon, so that the body can take the iron and other materials derived from the destruction of red cells in the spleen and reuse them for building new red cells in the reassembling plants of the bone marrow. Deficiency anemia is therefore rare in men. On the other hand, it is common in women because they periodically lose a large amount of blood. A normal woman with normal gastric secretion will easily absorb sufficient iron and other necessary substances from her food to replace the loss sustained. Even in women whose stomachs do not secrete acid, the deficiency anemia does not appear for years, usually not until middle age.

There are two distinctly different types of deficiency anemia, depending on whether the essential deficiency is a lack of iron or of the substances needed for the structure of the red blood cells. If the essential fault is a lack of iron, then the amount of hemoglobin in the blood is low, whereas the number of red blood cells may be almost normal or only moderately reduced. Each red blood cell is therefore pale, and many of the cells are small and shrunken because of the lack of hemoglobin. Because this type of anemia is caused by a lack of coloring matter, it is called hypochromic anemia.

In the other type of deficiency anemia the essential deficiency is a lack of the substances needed in the structure of the red blood cells. The number of red cells is therefore tremendously reduced, sometimes to as low as 10 or 15 per cent of the normal amount. On the other hand more than enough iron is available so that the red cells are crammed with an excessive amount of hemoglobin. Most of the red cells are therefore larger than normal and much deeper in color. For this reason, this type of deficiency anemia, formerly known as pernicious anemia, is now called hyperchromic anemia.

In hypochromic anemia, the patient is pale because of the lack of hemoglobin. In hyperchromic anemia, the patient is also pale because of the blood deficiency, but the pallor is of a distinctly yellowish tinge.

Our knowledge concerning the mechanisms responsible for the two types of deficiency anemia is the result of discoveries made in the last few years by such investigators as Drs. Minot, Castle and Murphy of Boston. Their work followed on the investigations of Dr. George Whipple of Rochester, N. Y. Fortunately, the men who have discovered the causes of the several types of anemia have also discovered the cure. Hypochromic anemia can be promptly cured by doses of iron far greater than the amounts which it was previously the custom to prescribe. Hyperchromic anemia, or pernicious anemia, can be cured just as promptly by supplying the patient with the substances which are lacking and which can be found in large amounts in the liver of any animal. Up to a few years ago, every one in whom pernicious anemia developed died of the disease. Today no one who receives the proper treatment with liver extract, given by mouth or by injection, needs to die of this disease. A previously universally fatal disease is now easily and completely curable.

It is pleasant to contemplate that the complete understanding of the mechanisms responsible for the various forms of anemia and of their cure is almost entirely the result of the brilliant investigations of American scientists. It represents one of the great modern advances in medicine. Like the recent discovery of insulin for the cure of diabetes, it has already resulted in the saving of thousands of lives and has restored the health and happiness of many more. It is all based on experimental work on the dog and represents one of the greatest gifts of the dog to mankind.

Hospital Rebellion

By EDITH DILLINGHAM BROWN

For weary weeks, content to be
A model of passivity,
Today I feel, to my surprise,
A longing for satanic guise;
An overwhelming urge to curse
Each kindly doctor, pretty nurse,
And by some trick, however mean,
To break the medical régime.

But yet, perhaps my aberrations
Are convalescent indications!

Nobel Prize Winners in Medicine

George Minot

George H. Whipple

Photos by Wide World

William P. Murphy

WHEN Alfred Bernard Nobel, manufacturer of dynamite and inventor of smokeless powder and artificial rubber, died on Dec. 10, 1896, he bequeathed the sum of $9,000,000 to provide for five prizes of $40,000 each to be given each year for important work in physics, chemistry, medicine and literature and for the promotion of peace. These prizes are awarded regularly by the Caroline Institute of Stockholm, Sweden.

This year the Nobel prize in medicine has been awarded to three Americans who have worked together in the development of one of the greatest discoveries ever made for the benefit of mankind; namely, a method for the control of pernicious anemia by the use of liver. The three men who divided the prize are Drs. George H. Whipple of Rochester, N. Y., and George Minot and William Murphy of Boston. Some years ago, Whipple and his associates showed that certain foods, especially liver, will cause blood to develop rapidly in dogs which have become anemic as the result of bleeding. Drs. Minot and Murphy then fed liver to patients with pernicious anemia and found they could save the lives of these patients, although previously this disease was considered invariably fatal. Of course, human beings had eaten liver before the time of Whipple and Minot and Murphy. There are even references to liver in the diet as far back as 300 B.C., but these men proved for the first time that liver will regenerate blood and found that it will do this in cases of pernicious anemia. Their discovery not only saved the lives of such patients but also opened a new field in research on the blood, and it may lead to the saving of life from such diseases as leukopenia and purpura and other conditions in which the blood is deficient.

The Nobel prize is a means of giving a small amount of cash and a great deal of publicity to medical men who have aided civilization by their accomplishments. Actually, the debt of civilization to modern scientific medicine can never be fully repaid. Medical scientists have never worked for recompense for their discoveries but have given freely of their work for the benefit of all mankind.

The list of those who have won the Nobel prize in medicine calls the roll of many of the greatest names in the history of this science. Many times the discoveries have been so technical that the average man has not appreciated their worth, yet on other occasions their immense importance has been immediately apparent.

For example, the first prize, awarded in 1901, went to Emil Adolf von Behring, a German, who was most instrumental in developing the antitoxin for diphtheria. Diphtheria antitoxin immediately lowered the death rate from this disease tremendously, and the discovery of this antitoxin opened the way for numerous discoveries of other antitoxins which are life saving in infectious diseases.

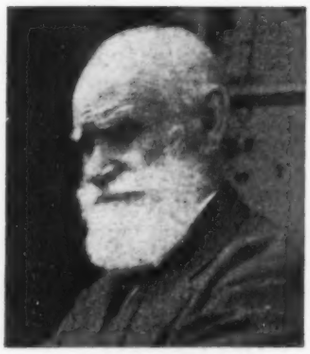
In 1902, an Englishman, Sir Ronald Ross, won the prize for his discovery that the Anopheles mosquito spreads malaria. He also discovered methods for destroying these mosquitoes, and as

By MORRIS FISHBEIN

Emil A. von Behring

Sir Ronald Ross

Niels R. Finsen



Ivan P. Pavlov

a result, malaria has been stamped out of most of the civilized world and is being gradually eliminated even from the tropics.

A Swedish investigator won the prize in 1903. His name was Niels Ryberg Finsen. Finsen used light rays particularly in the treatment of a skin disease called lupus. The beginning of modern scientific study of the use of light for the control of disease dates back to Finsen's first efforts.

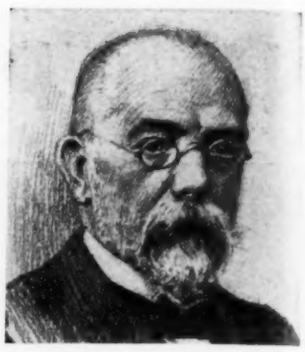
The international character of the prize was still further demonstrated in 1904 when Ivan Petrovich Pavlov, professor of physiology in the Military Academy of Medicine in Russia, received the Nobel award. The name of Pavlov is today associated principally with what are called conditioned reflexes. He has enabled us to understand why we unconsciously conduct ourselves in certain ways. Besides these discoveries, Ivan Pavlov long ago carried out investigations on the digestive tract which have enabled us to bring under control many diseases of the stomach. The Soviet government has made his laboratory one of the great show places of modern Russia; and regardless of the manner in which other people are treated, Pavlov is given special recognition for his fame and for his scientific work.

Robert Koch, a German, received the reward in 1905. Koch discovered not only the germ of tuberculosis but also the cholera bacillus and other organisms. He developed methods for growing germs outside the body. He listed the terms necessary before any germ can be recognized as the definite cause of any disease. He was a country doctor, and his career proved conclusively that great discoveries may be made not only in the laboratory but by any great mind with the materials that are at hand.

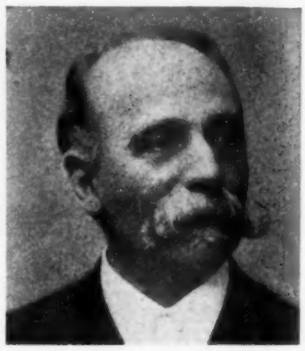
In 1906, the Nobel prize was divided between two investigators for the first time. They were Ramón y Cajal of Spain and Camillo Golgi of Italy, and they were awarded the prize because each of them had contributed notably to investigations of the structure of the nervous system. They had devised staining substances which are used in staining this structure and which permit study of its character under the microscope. Ramón y Cajal was not only a great medical investigator but also an author of note and one of the leading statesmen of Spain.

In 1907 a Frenchman, the first Frenchman to win the prize, received the reward for his work in determining the organism that is specifically responsible for malaria. Charles Louis Laveran, who did this work, was director of the Pasteur Institute in Paris. Since the time when Pasteur himself was the first director of the Institute, it has developed marvelous discoveries in the field of medicine.

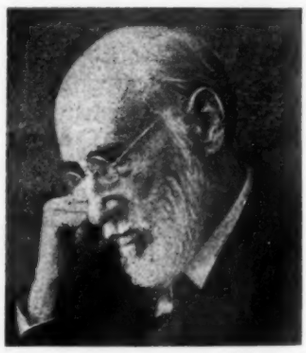
Another demonstration of the international character of medicine was the division of the prize in 1908 between Paul Ehrlich and Elie Metchnikoff of the Pasteur Institute in Paris.



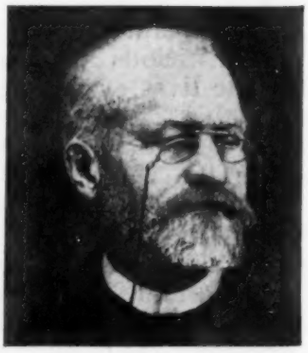
Robert Koch



Camillo Golgi



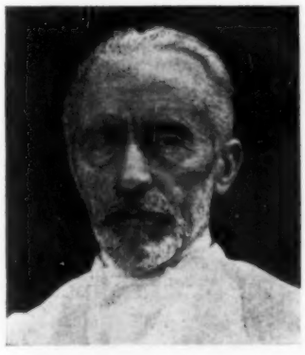
Ramón y Cajal



Charles L. Laveran

Paul Ehrlich

Elie Metchnikoff



Theodore Kocher

Albrecht Kossel

Each of these men has contributed notably to the control of one of the greatest menaces to human health, the disease called syphilis. Ehrlich discovered "606," or arsphenamine. Previously he had done marvelous work in the study of dye substances of all kinds, and he is credited with being the founder of the application of modern medicine to chemistry. The great Russian Metchnikoff is known to many persons because of the fact that he once said that the drinking of curdled milk, a habit indulged in by the Bulgarians, was largely responsible for the length of their lives. But before he advanced these theories he had made notable studies on the way in which the body protects itself against disease by changes in the blood; he had done fundamental work on the way in which the body becomes infected with syphilis, and he had established several new physiologic conceptions of disease.

It is interesting to realize that thus far not one Nobel prize had gone to a surgeon, although surgery has always been for the public the most dramatic of medical performances. However, a surgeon did win the prize in 1909. He was Theodore Kocher, professor of surgery in Bern, Switzerland. In 1878, Kocher discovered the operation for removal of the thyroid gland, and his work in that field was epoch making. By his investigations the nature of this gland and its relationship to the functions of the body was established. There is an immense amount of goiter in Switzerland, now believed to be caused by the fact that the water of Switzerland does not contain enough iodine. There is an intimate relationship between iodine and the thyroid gland.

In 1910, a German physiologist, Albrecht Kossel, received the Nobel prize for his fundamental research on chemistry and biology of the cell and particularly for his studies of the make-up of the nucleus of the cell. This nucleus is the vital portion of the cell; it is responsible for its development.

Allvar Gullstrand, professor of diseases of the eye in Upsala University, received the prize in 1911 for his mathematical investigations of dioptrics. This is a science which is concerned with the refraction of light through the transparent portion of the living eye. The discovery may seem technical, but the method is of exceedingly great importance in studying astigmatism, in studying the way in which the eye accommodates itself to light and to distance in vision. Gullstrand was also the inventor of several instruments which have been of tremendous importance in studying diseases of the eye.

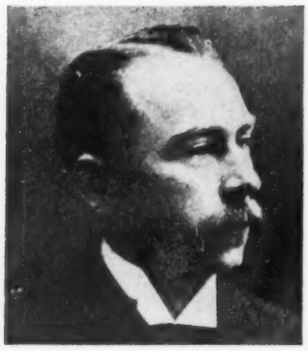
The first American to win the Nobel prize was Alexis Carrel of the Rockefeller Institute for Medical Research. Carrel does not happen to be a native of America, but his work was supported by Americans and was carried on in New York. He has made many notable dis-

Allvar Gullstrand

Alexis Carrel

Charles Richet

Robert Bárány



Jules Bordet

coveries. He found out how to raise living tissues outside the human body and developed new methods of sewing blood vessels, and he was able to transplant tissues from one animal to another.

In 1913 another physiologist received the reward. Physiology is the science that deals with the function of living organisms. Since 1878 Charles Richet, professor of physiology in the great University of Paris, had studied the functions of the human body. In these studies he found out that the human tissues may become sensitized to substances of protein character. This is known as the phenomenon of allergy or anaphylaxis. It is the basic conception behind our recognition of the cause of such conditions as hay fever, asthma, certain forms of headache and many eruptions of the skin.

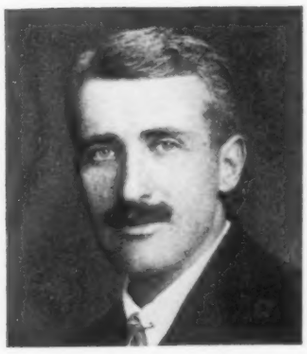
Frederick G. Banting

August Krogh

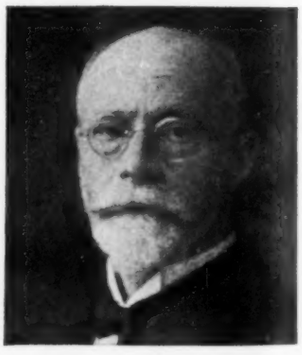
Another specialist, Dr. Robert Bárány of Vienna, won the prize in 1914 for studies on the ear. He was particularly concerned with the development of certain tests which enabled the doctors to distinguish between the kind of dizziness that is brought on by diseases of the ear and that which is brought on by changes in the brain.

Now came a long period during which the prizes were discontinued. The World War and its aftermath changed the value of the money and greatly lowered the income of the Nobel prize board; but in 1919, with the coming of peace, the prizes were restored, and the first to receive an award was a Belgian, Jules Bordet, professor of bacteriology in the University of Brussels and also director of the Pasteur Institute in that city. It is interesting to realize how many of these great prize rewards were made to men who were directly carrying out the ideas first originated by the world famous Pasteur. Had he lived, this great Frenchman would certainly have been the recipient of the Nobel prize. His name has been selected many times as that of the greatest benefactor of mankind, because his discovery freed mankind from the fear of epidemics, disease and death. Jules Bordet studied the blood and its reactions to various injections. He did the fundamental work which led eventually to the finding of the Wassermann test for syphilis. His name was also associated with the discovery of the germ that causes whooping cough. Certainly he, too, has been a great benefactor of humanity.

J. J. R. MacLeod



Archibald V. Hill



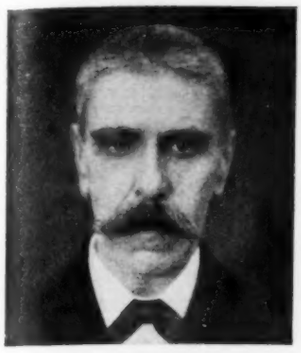
Willem Einthoven

Otto Meyerhof

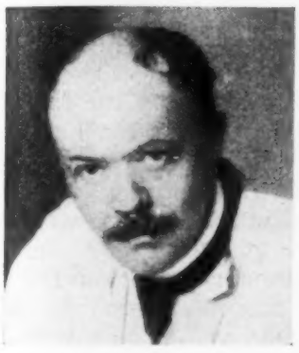
We know today that the smallest blood vessels are the capillaries which represent the filaments in which the smallest arteries terminate. Professor August Krogh of Copenhagen, Denmark, received the Nobel prize in 1920 for determining the character of the capillaries and for finding out the way in which they regulate the flow of the blood.

Again in 1922 the Nobel prize was divided, this time between an Englishman, Archibald Vivian Hill, professor of physiology in the University of London, and Otto Meyerhof, professor of physiology in the University of Kiel, Ger-

Johannes Fibiger

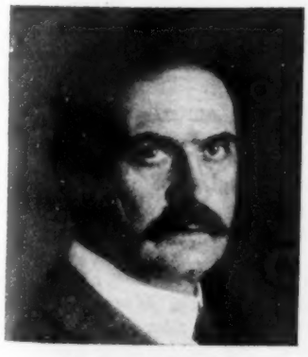


J. Wagner-Jauregg



Charles Nicolle

Christian Eijkman



Karl Landsteiner

many. These men made it possible for doctors to understand how muscles work in carrying on their activity. Their studies have been of the greatest importance in relationship to our understanding of fatigue and effort.

Then came an announcement in 1923 to which all the world readily gave its consent, for in that year Dr. F. G. Banting and Prof. J. J. R. MacLeod of Toronto announced the discovery of the substance known as insulin. Immediately Banting and MacLeod arranged to divide the prize still further, each giving a portion of his share to their colleagues, Drs. Best and Collip; the younger men had been associated with the older investigators in this work. Formerly diabetes in children was considered invariably fatal. Since 1923, thousands of lives have been saved, and some of the children who began taking insulin then are now young men and women attending college and living successful careers.

Many of the greatest discoveries that have been made in medicine have represented the means of extending the senses of mankind to a greater degree of accuracy in the detection of disease. A Dutch physician, Willem Einthoven, received the Nobel prize in 1924 for research on the heart. He discovered that certain electrical currents are developed by the heart when it beats, and he developed a device which makes it possible for the heart to write down the way in which it is working. This device is called the electrocardiograph, and its use has advanced tremendously our knowledge of the nature of the forms of heart disease.

In 1927, another Danish physician received the prize. He was Dr. J. Fibiger. For the first time the word "cancer" appears among these awards. Fibiger found a way of producing cancer artificially in mice. It is difficult, indeed, to study cancer in human beings who have the disease, but this work on mice greatly advanced the opportunity of investigators to study cancer and may be the fundamental work that eventually will yield a solution to this most difficult of modern medical problems.

A professor of psychiatry in Vienna, Julius Wagner-Jauregg, received the Nobel prize in 1927 for his demonstration that dementia paralytica, or general paresis of the insane, can be treated successfully by injecting malaria into those who have it. Later it was found that the manner in which malaria improves this condition is by developing fever, which makes it impossible for the germ of syphilis, the cause of general paresis of the insane, to live in the human brain and nervous system tissue. With this first announcement by Wagner-Jauregg has come a tremendous advance in the use of heat in the treatment of disease. Thus every great discovery in medicine opens up a new field through establishing new methods of investigation.

In 1928, Charles Nicolle, a Frenchman working in Africa as director of the Pasteur Institute

Otto Warburg

Edgar D. Adrian

C. S. Sherrington

Thomas H. Morgan

in Tunis, received the Nobel prize. He found that typhus fever is transmitted from one person to another by the body louse. He had also done notable work in diseases affecting the nervous system, such as meningitis and infantile paralysis, and altogether had contributed greatly to our knowledge of infectious diseases.

Among the most recent of famous medical discoveries are those concerning the vitamins. The first man to receive the Nobel prize for this kind of work was another Hollander, Christian Eijkman, professor of hygiene in the University of Utrecht. His name is associated with the development of the vitamin that overcomes beriberi and poliomyelitis. He shared the award with Dr. Frederick G. Hopkins of the University of Cambridge in England. Hopkins is credited with demonstrating first of all that there are food substances other than proteins, fats and carbohydrates which are necessary for growth.

The prize came to the United States again in 1930 when an Austrian, Karl Landsteiner of the Rockefeller Institute in New York, received the award for his discovery that the blood in every human being is individual and that there are within it various groups of substances which make it react in definite ways to the blood of other persons. This work has led to the practical use of blood transfusion and to some fundamental discoveries in relationship to race and heredity.

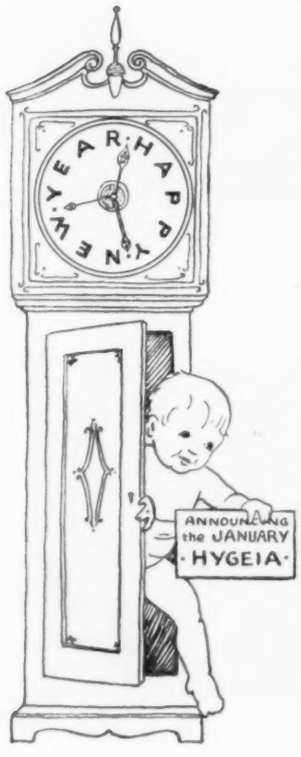
Otto Warburg, a biologist in Germany, received the prize in 1931 for some fundamental research on the way in which tissues breathe. While this fact may not seem significant to health and to life, it is basic in its importance to studies of the growth of the cancer cell. Today the name of Warburg is among the greatest in the field of cancer.

In 1932 the Nobel prize again went to England, being given to E. D. Adrian of Cambridge and Charles Scott Sherrington of Oxford for their monumental contribution to our knowledge of the function of the nervous system.

An American in Pasadena, Calif., Thomas Hunt Morgan, born in Kentucky, won the Nobel prize for 1933. His name is associated with genetics and heredity. He helped to find out how we inherit such characteristics as the color of our eyes, and disclosed many facts in relationship to the inheritance of disease.

Now again America is recognized by the fact that Drs. Whipple, Minot and Murphy have been awarded the 1934 prize. Today research in medicine as carried on in this country leads all the world. American initiative coupled with American opportunity are winning for the youngest of the great nations recognition for superlative achievement in science, comparable to the recognition it has already won for superlative achievement in advancing industry and finance.

Keeping Pace with the Times, Hygeia Brings New Thoughts for the New Year



As sympathetic champion of the new generation there arises *Dr. Wingate M. Johnson,* who belongs to the middle generation, which Elmer Davis has described as "the dutiful and damned." "Although my hair is rapidly getting grayer and thinner, and I have long been seeking excuses to stay at home nights rather than go out, my sympathy," writes Dr. Johnson, "is chiefly with the younger generation. It has been so hard for them to keep in the straight and narrow path beaten by convention."

In a forward looking article, "Why Condition the Air?" *Dr. J. Arthur Myers* anticipates the day "when nearly all homes and buildings will contain conditioned air and as a result, hay fever will be a rare condition and the dust nuisance in the home will have vanished. The common cold and the complications that develop from it, including pneumonia, will be much less prevalent. We shall work with 100 per cent efficiency, as far as the air is concerned, and we shall not suffer the discomforts of overheated or underheated air or improper humidity."

In her article entitled "Overcoming Worry," *Prof. Margaret Wylie* of Cornell University gives excellent advice for starting the year right; and for parents, who are notably among the world's worst worriers, she adds a special word of warning: "Of course, if you think there is virtue in worrying and that doing it puts you on the list of recognized and deserving mothers and fathers, you will not want to give it up." Parents, however, are not the only worriers, and Professor Wylie's wisdom, which deals with many of the everyday problems that form such a large part of every life, is applicable to all those who are sincerely interested in attaining a happier, healthier attitude toward life.

With the new year, *David S. McLean, D.D.S.,* begins a series of articles entitled "These Teeth of Mine," which is dedicated to the cause of better health through better dental health.

"The world is full of things the normal child wants to know: How did you know whether I was a little girl or a little boy? Why do we keep roosters when they don't lay any eggs for us? Was the neighbor's baby born with a pink blanket on or with a blue blanket on?" In an article on sex education for young children, *Mary Price Roberts, Ph.D.,* gives sound advice on how and when to answer the perplexing questions that intrigue the growing child.

City Progress Promotes Health and Safety

Acme

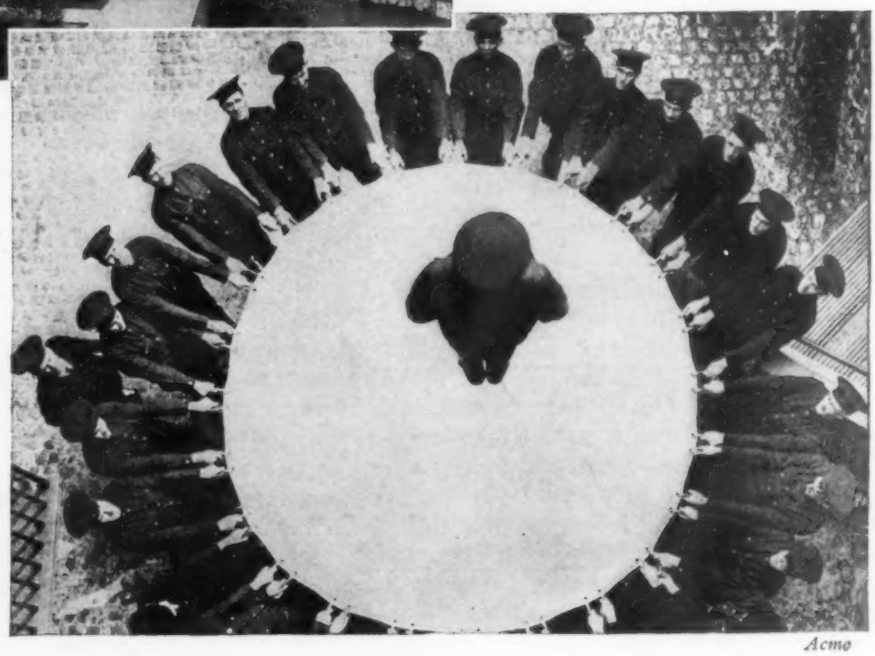
A new system of "sanctuary lanes" enables the London pedestrian to stop vehicular traffic until he has crossed the street. Immediately a pedestrian steps on the herringbone marking, all traffic must stop.

Ewing Galloway

Slum clearance will remove such bad housing and unfavorable environment as that shown above in the Soho district, Pittsburgh.

Ewing Galloway

The scene above has replaced dismal shacks on Mt. Washington, Pittsburgh. Rentals average $50 a month; rentals for the razed houses were from $40 to $50.



Acme

Part of a recent demonstration in life saving given by London firemen consisted of jumping into a safety sheet from a "burning building."

The Wassermann Test

By

JOHN A. KOLMER

Many physicians hesitate to have the test done on their private patients for fear of giving offense, but this is a foolish attitude on the part of both physician and patient.

OF ALL the laboratory examinations that are used as aids in the diagnosis and treatment of disease, the Wassermann test is probably one of the most valuable and widely employed. When it is properly conducted, it is a highly specific and sensitive test for syphilis. This disease is so widespread and may exist so frequently without outward manifestations and without being suspected that the test has proved an invaluable aid in diagnosis and indeed may be the only means by which the physician may detect the disease, especially in its chronic stages.

While syphilis has been known for centuries to be an infectious disease, yet the germ called Spirochaeta pallida, or Treponema pallidum, escaped detection until 1905 when Schaudinn of Berlin made the great discovery. A few months later, Neisser learned how to transmit the disease experimentally to monkeys; and about a year later, Wassermann, Neisser and Bruch discovered the blood test with these syphilitic monkeys and later with the blood of syphilitic human beings that is now known the world over as the Wassermann test. In the meantime, other investigators found that the disease may be transmitted to rabbits. This made it possible to experiment with new drugs on a large scale, so that in about 1908, Ehrlich finally succeeded in making arsphenamine for the treatment of the disease. This was one of the greatest triumphs in medicine, and it was made possible only by animal experimentation and chemical research! This triad of "rapid fire" discoveries is without parallel in the history of medicine. The discovery of the germ was followed by that of an invaluable blood test for the disease it produces and lastly by a wonderfully efficient new drug for its treatment, all in the space of about three years.

In the great majority of cases, syphilis is a venereal disease but may be transmitted by the use of infected eating and drinking utensils, by kissing and in other extragenital ways. One of its horrors is the possibility of syphilitic men or women transmitting the disease to their children. No one really knows in accurate terms how widespread syphilis is, as the incidence varies among individuals of various social conditions; but it is practically certain that today there are millions of persons with syphilis in the United States alone, and the incidence is even higher in some other parts of the world. A large percentage of these persons either do not know that they have the disease or believe that they have recovered from it.

As a general rule, syphilis produces a sore called a chancre at the place of penetration of the germ in from three to six weeks after exposure; but this sore may be so small as not to excite suspicion, especially when it occurs on the lips or fingers, and it may not be seen at all in women. A few weeks later, rashes usually appear on the body and in the mouth; these are called the secondaries, but even these may escape detection. After this, the germ settles down in the internal organs for a period of years during which time the individual may

enjoy good health; this constitutes the so-called latent stage. In reality the germs are not liable to be truly latent or dormant at all but are gradually producing mischief so that it would be better to call this the concealed stage. After the lapse of a variable number of years, signs and symptoms of chronic disease appear in the brain or spinal cord, the heart and arteries, the nose, eyes, ears, throat, muscles, bones or other parts of the body, as all organs and tissues are susceptible to the infection. This is the so-called third, or tertiary, stage, and all untreated individuals are liable to reach it if they live long enough. It is doubtful whether any one really and completely recovers from syphilis without prolonged, skilful medicinal treatment.

During the first, or chancre, stage the diagnosis is best made by examining the secretions for the germ itself. This is done by means of a special microscope called the dark-field illuminator, because at this time there is not enough antibody, or reagin, in the blood to give positive reactions. Unfortunately the appearance of the sore or ulcer may not be typical, and its true nature may not be suspected. If only every sore on the genital organs and all slowly healing ulcerating sores on the lips and fingers were examined by the dark-field illuminator, a larger number of unsuspected cases of syphilis would be detected during this early stage. This would greatly lessen the chances of individuals unknowingly transmitting the disease to others and would also permit the instituting of treatment at the most favorable time for complete cure. During the first two weeks or so, however, the Wassermann test is liable to give falsely negative reactions; that is, it will fail to show the presence of the disease, and many individuals escape diagnosis and live on with a false sense of security because of a negative Wassermann reaction at this time. During the secondary stage, however, the reaction is positive in almost 100 per cent of such cases.

The Wassermann test has its greatest value in the detection of the disease during the latent, or concealed, stage when both syphilitic men and women may not show any signs or symptoms and may be in apparent good health despite the fact that the sword of Damocles is hanging over their heads. They may be honestly enough entirely ignorant of how or when they contracted the disease, especially in the case of women; they may remember having had a sore or a discharge in earlier years which was regarded as nonsyphilitic or "innocent," or they may frankly admit having contracted the disease but relate that they had been assured by their doctor that they had fully recovered after a period of treatment. Even the most skilful physician may fail to detect the disease under these conditions; but the Wassermann test, when properly conducted with a sensitive technic, will detect it in the majority of cases. For this reason many hospitals and clinics now do this test as a routine on all patients; if it were only used more frequently in private practice, many cases of syphilis would be detected when and where its presence was not suspected and at a time when the prompt institution of proper treatment would hold it in check for many years and even enable the victim to reach the full span of life without the terrible final, or tertiary, stage being reached at all. Many physicians hesitate to have the test done on their private patients for fear of giving offense, but syphilis can be contracted in so many ways other than by sexual contact that this appears to be a foolish attitude on the part of both physician and patient. Not infrequently a test done merely as a routine and without suspicion reveals an unexpectedly positive reaction which may be the only evidence of the presence of the disease. Curiously, however, it is sometimes surprising how a positive Wassermann reaction sharpens the memory of some individuals with the recollection of an episode earlier in life now forgotten or hidden!

In the third, or tertiary, stage the physician may detect the disease readily enough by its signs and symptoms; but here again chronic syphilis of the heart and aorta, of the nose, eyes, ears, throat, liver, bones, joints and other tissues may not be suspected even by the skilful and careful practitioner, whereas the Wassermann test with the blood or spinal fluid, or both, clearly establishes the presence of the disease in the majority of cases.

Furthermore the test is an invaluable guide in treatment; and the great majority of specialists in syphilis believe that as long as the Wassermann reaction is positive, the disease is still present regardless of the fact that the patient may look and feel quite well. As a general rule the reaction becomes gradually weaker during medicinal treatment, and in the majority of cases it finally becomes negative; but a single negative reaction does not necessarily mean a cure. For this reason some treatment is usually given after the first negative reaction, and the test should give a negative reaction at least twice a year for several years after treatment has been stopped before recovery can be said to have taken place. Indeed even under these circumstances, one cannot be sure of complete recovery, and it is better and safer to have the test made at least once a year for the rest of one's life because if some of the disease still remains it is liable to grow and finally to give a positive blood reaction later on but long before any signs or symptoms appear and at a time when renewal of treatment is again likely to hold it in check and maintain good health for the usual span of life.

Unfortunately in some cases of chronic syphilis the reactions never become negative even after much treatment has been given. These

Investigators are ever at work to render the Wassermann test more sensitive while maintaining its specificity.

are called "Wassermann-fast" cases and may occur among individuals in good general health. Most authorities believe that as long as the Wassermann reaction is positive the disease is present regardless of seemingly good health; it is then especially liable to be lurking in the brain or spinal cord or in the heart and aorta. It may never be possible to cure the disease to the point of permanently negative reactions, and in some cases it is not advisable to continue vigorous treatment to secure this result, but it would appear advisable for such individuals to remain under medical surveillance and to take courses of treatment once or twice a year to hold the disease in check in order to reach the usual span of life even though complete cure may be impossible.

Furthermore it is now well known that in the latent and tertiary stages and especially in cases of infection of the brain and spinal cord the Wassermann blood test may give a negative reaction when the spinal fluid gives a positive reaction. For this reason spinal puncture and examination of the spinal fluid are frequently demanded in addition to the blood test for diagnosis, and no one should be regarded as cured and dismissed from treatment without at least one examination of the spinal fluid to guard against the regrettable mistake of stopping treatment too soon and overlooking infection of the central nervous system. Fortunately along with the spinal fluid test there are other valuable tests for syphilis in addition to the Wassermann test; namely, the total cell count, protein estimation and colloidal gold test.

It is apparent that the Wassermann reaction is not an infallible test for syphilis. It may be negative in the first stage and also in the latent and tertiary stages. However, because of the frequency with which it detects unsuspected cases of syphilis, it is sometimes stated that the Wassermann test is too sensitive. This is not true; indeed it is not sensitive enough, and investigators are ever at work to render it more sensitive while maintaining its specificity.

Like all laboratory tests, it is not a substitute for skill, care and experience on the part of the physician. It is especially liable to give falsely negative reactions in latent syphilis of women and also in latent congenital syphilis of older children, but the percentages or chances of falsely negative reactions can be greatly reduced by entrusting the test to specially trained serologists employing a method possessing the highest degree of sensitiveness consistent with specificity. Not infrequently, physicians send the blood to poorly trained and inexperienced technicians or demand a report within a few hours which is not consistent with the best and most reliable results. Curiously enough the matter of proving or disproving the presence of syphilis in an individual may be the most momentous decision possible in his or her life and may possibly even involve the health of innocent children; and yet carelessness and indifference may be displayed in selecting the laboratory or serologist entrusted with the test and the final decision.

Still more important is the fact that the Wassermann test and all its substitutes are capable of sometimes yielding falsely positive reactions, and few things in medicine can be more tragic than fastening a false diagnosis of syphilis on some persons, since it may take months and years to convince them of the error and, indeed, some never quite recover from the mental shock. Unfortunately the test and all its substitutes are complicated methods, and in the great majority of instances falsely positive reactions are the result of technical errors in the laboratory. The chances of making such regrettable mistakes are greatly reduced when the test is done in the larger laboratories by specially trained and experienced workers.

Of great importance in this connection is the question whether or not diseases other than syphilis may give positive reactions. In former years, before the technic was perfected and especially when the tests were conducted by poorly trained and inexperienced workers, it was thought that many diseases such as tuberculosis, scarlet fever, cancer, diabetes and Bright's disease could give positive reactions in the absence of syphilis. It is now generally agreed that positive reactions occur only in some cases of leprosy and frambesia tropica, or

yaws; the former is uncommon in most parts of the United States, and the latter is a tropical disease. However, if the blood for the test is taken during a high fever or during jaundice or if it becomes stale before testing, the chances of falsely positive reactions are increased.

Therefore a positive Wassermann reaction does not necessarily mean syphilis; it may be due to an error in the laboratory or, rarely, to other diseases capable of giving positive reactions. When the test is done by a reliable worker, a positive reaction means the presence of syphilis in the great majority of instances even though the reaction is but weakly positive and unexpected. Under such conditions it is never wise or advisable to jump to the conclusion that the disease is present, but neither is it wise or advisable to ignore the results; under the conditions it is wise and proper to repeat the test and to undergo an unusually thorough examination.

The Wassermann test is not an examination of the blood or spinal fluid for the germ itself but rather for a chemical substance called an antibody which the body cells produce when irritated or infected by the germ. If the amount of antibody is extremely small, the test may fail to detect it altogether and give a negative reaction. One laboratory using a sensitive method may get a positive reaction while a second laboratory using a less sensitive technic may fail to get it. One laboratory may make a technical mistake and get a false positive reaction while a second laboratory observes a negative reaction. For this reason it sometimes happens that when the blood of an individual is sent to two or more laboratories at the same time, the reports are different; but it is readily understood how this can occur, since the Wassermann test is not conducted in the same manner in all laboratories or by workers of equal skill and experience. Indeed the original Wassermann test is hardly used at all these days, but rather many different modifications of it, most of which are superior to the original method but some of which are inferior, are employed. All masquerade under the general title of Wassermann test and may easily give the erroneous impression that it makes little or no difference who does the test since it is the same in all laboratories. Nothing could be further from the truth.

Equally skilled workers using the same method agree remarkably well in their results so far as positive or negative reactions are concerned although their positive reactions may vary somewhat. This does not have great significance, since the important issue is whether the reaction is positive or negative. Furthermore, the amount of antibody in the blood may fluctuate from day to day or from week to week, so that the reaction may be strongly positive at one time and weakly positive at another.

Since the test is a complicated one, it is not surprising that many investigators have sought to simplify it during the past twenty-five years. As a result, there are many modifications in use such as the Noguchi reaction, the Hecht-Weinberg-Gradwohl test and others, based on the same mechanism, known in scientific circles as complement-fixation. They are based on the same principles, are subject to the same errors and require the same care and skill in their conduct. Some, however, are more sensitive than the Wassermann test and may give truly positive reactions when the Wassermann test gives a false negative reaction. Unfortunately, some are too sensitive and may give falsely positive reactions so that not all modifications are acceptable.

Other modifications are the so-called precipitation or flocculation tests for syphilis, which are not Wassermann or complement-fixation tests at all but other methods for detecting the syphilis antibody in the blood and spinal fluid. Such tests have been in use for about twenty-five years; the best known at present are those of Kahn in this country, Sachs and Georgi in Germany, Vernes in France and Dreyer in England. They are cheaper to conduct, since fewer reagents are required; but they require an equal degree of skill and experience and are equally subject to mistakes and false reactions. Being cheaper to conduct, they have been adopted in some localities as substitutes for the Wassermann reaction, but most authorities believe that the serum or blood diagnosis of syphilis is best served by using one of these tests along with the Wassermann test in the examination of all specimens. If both tests are positive, the evidence of the presence of syphilis is better than if only one test is used; likewise if both are negative, the evidence in favor of the absence of the disease is much stronger than with either test alone. The difficulty arises when one is positive and the other is negative and this may happen in from 6 to 10 per cent of blood specimens. Under such conditions the physician must make the final decision on the basis of his examinations. Nevertheless, it would appear that both tests are better than either used alone.

There are, therefore, in the Wassermann test and various precipitation tests exceptionally valuable means for detecting syphilis and for guiding or determining the amount of treatment to administer. Both methods are subject to errors in a positive or negative way, but these are almost negligible when the tests are done by competent and experienced workers. In no other disease are tests of equal diagnostic value known or available, and the success of medical science in discovering and developing them along with the discovery of new drugs for the treatment of the disease stands as a goal for similar efforts in many other serious diseases.

Speech Problems in Childhood

Books with alluring colored pictures may be of great value in the process of reeducation.

AMERICA is becoming speech conscious. The telephone, the radio, the "talkie," along with competitive business and professional life, are making every one acutely aware of the value of good speech.

The development of normal speech into artistic perfection is an art long practiced, but only since science in various fields has shown the way has it been possible to make out of abnormal, ugly speech something that is both intelligible and pleasing. We are likely to take for granted that speech is a natural and therefore an easy development for the child. We forget our own early struggles with it, our efforts to make ourselves understood in those dim far away days when a fond mother urged us to "say it more plainly," and we knew not how that was to be done. We were obliged to blunder on, and we were fortunate if a happy combination of physical and mental equipment permitted eventual success.

Experts in child knowledge now tell us that "learning to talk" is a perfectly tremendous task, one that easily may take a wrong turn or twist. Not only does it involve the complexity of muscles and nerves of lips, tongue, jaw, vocal bands, larynx, and oral and nasal resonance chambers all working in harmony, but these in turn are played on by the emotions and dominated by thought processes. Is it strange that in this medley of urge and inhibition, children sometimes develop speech difficulties that result in lifelong handicaps?

Primarily, our vocal organs serve purposes other than speech; lungs were given to the human animal for breathing; the mouth was formed for feeding, and the vocal bands were supplied as protection for the windpipe. Language in its complexity is a supplementary function which civilization has thrust on us, and since it is among the last of our acquired functions it is the most easily disturbed. The nationwide survey made for the White House Conference on Child Health and Protection reveals that more than 1 million children in this country suffer from defects of speech.

Common sense and science are in agreement on the untoward part played by defective speech in mental and physical well being. Any hindrance to free expression through speech is admittedly an enemy to happiness and success in life, an insidious enemy indeed because the attack comes from within the person himself through his loss of confidence in the ability to hold his own among his fellows. The White House Conference survey rates speech defects as a "major handicap" and includes speech disorders among "common factors leading to maladjustment and failure in life." It is apparent therefore, if we are to prevent this human waste and the mental suffering involved, that speech defects should be given adequate help in the plastic years of childhood.

There are two main groups of speech disorder, those of an organic nature and those of a functional nature. To the organic group belong disorders the origin of which lies in a physical condition, while the functional group is composed of disorders traceable to an emotional condition.

Considering first the so-called organic group, we find that the causative factor may be the structural condition of the teeth, the shape of the jaw, paralysis of the musculature, abnormality of hard or soft palate, growth on the vocal bands or the presence of infection, all of which are conditions calling for the application of medicine and surgery. Indeed, the possibility of an organic cause for every speech defect should never be overlooked. In no case

By

DOROTHY M. WOLDSTAD

should speech training begin until there has been a diagnosis by a physician and all necessary medical and surgical treatment has been given.

In undertaking the correction of a speech difficulty, too much emphasis cannot be placed on the need for an early beginning. If, instead of being amused by the baby's "funny little way" of mispronouncing sounds, the parents were apprehensive enough to seek proper counsel, much suffering could be averted. The experiences of Geraldine and Jack illustrate this point.

Geraldine was an uncommonly attractive child with a unique baby speech. An hour of amusement was assured in her neighborhood when, seated on a table or lifted high on some one's shoulder, she was encouraged to talk to the group around her.

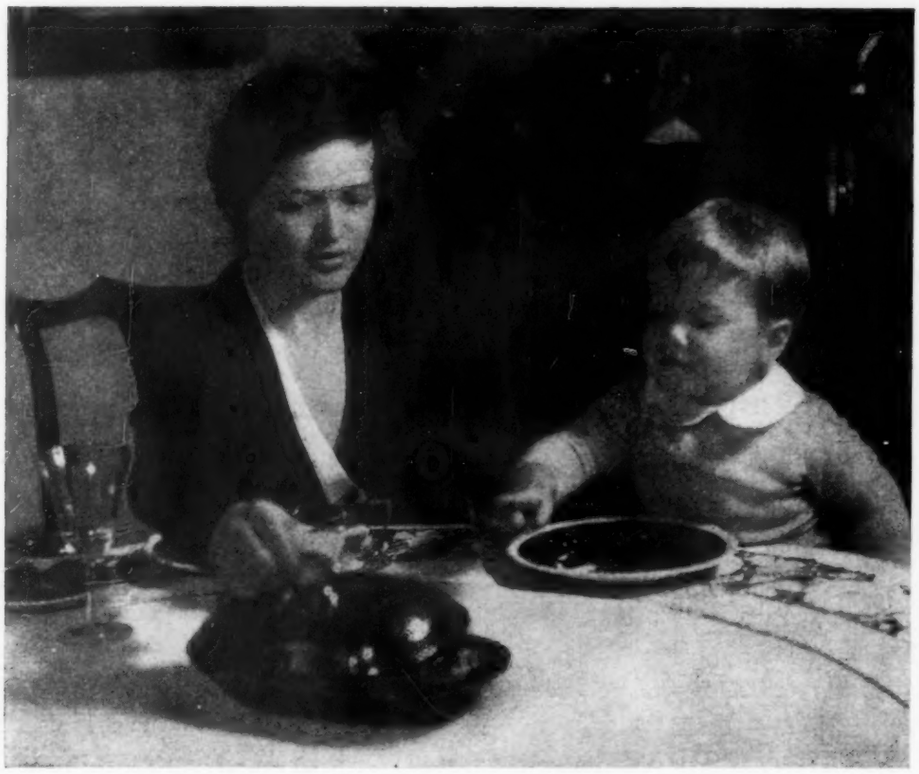
"O, tell us again!" "Just listen to that!" "Isn't she funny?" "Don't you love to hear her?" exclaimed her listeners as they shrieked with laughter. Then she would be rewarded with candy or a trip to the corner drug store for ice cream. Geraldine had reason to believe that her "funny speech" was a desirable asset; it pleased other people and brought nice things to eat to a little girl. She is in high school now. Her speech is still most unusual; in fact, it is almost impossible for her to be understood. With despair in her voice she laments, "People think I'm stupid and, really, I'm not! Do you s'pose I can learn to talk like other girls?"

Perhaps Jack's story is even more pathetic. He was not a well baby, and his mother believes he is alive today only because she "saved his strength" by anticipating his every wish so that he need not exert himself. Because he was a most lovable child, his family continued the indulgence even after he had outgrown any need for it. When Jack was 3 years old, he had not learned to talk; instead, he would point, some one would say the words for him and he would be given what he wanted. This proved an easy way to satisfy desire, but as he grew older he found that the neighborhood children did not enjoy him as a playmate; they preferred little boys who said things and asked questions. Often the other children would pick up their toys and leave "the funny little boy who doesn't talk." Jack is now 16 years old; his speech is inarticulate, almost unintelligible. He does not like to be with people because he feels that he is different from them, and so he has few friends. He is an unhappy, lonely boy who wonders what is the matter and why he "just doesn't fit in."

To Mothers and Fathers

A Few Questions with Answers Concerning Speech

1. Does your child of 2 years point and mumble or grunt for the thing he wants?
   If you anticipate his wants before he expresses them, his speech development will be retarded.
2. Does an intelligent mother employ "baby-talk"?
   No, for this practice establishes wrong speech patterns which the child will imitate when his speech develops. When he enters school, he will be handicapped because his learning load will be doubled; he will have to unlearn the wrong way and learn the right way.
3. Does mental inferiority accompany stuttering?
   Stuttering is a functional disorder, usually emotional in nature. The average stutterer, contrary to the general belief, is normal or superior in intelligence. A comparative study of the intelligence quotients of a group of stutterers shows that 84 per cent are normal and above normal.
4. Is left-handedness a causative element in stuttering?
   Convincing evidence to support the opinion that left-handedness is a causative element in stuttering is revealed by the research of Dr. Lee Travis of the State University of Iowa preceded by that of Dr. Orton now of Columbia University.
5. Should a left-handed child be trained to fit into a right-handed world while he is still young?
   If the parent's gentle, unspoken influence in favor of the right hand is not effective and if the effort to cause the shift is continued, the result may be to give the child a speech difficulty or nervous instability, a much greater handicap than left-handedness would be.
6. Should the parent or teacher correct a stuttering child?
   Only infrequently should correction be given and never before other persons. Stuttering is a symptom which should never be emphasized. Above all else, a stutterer needs confidence in himself. A sense of relaxation, together with rest, is necessary in corrective treatment.
7. What is tongue-tie?
   Tongue-tie is a term applied formerly to almost every type of speech difficulty. Sometimes the frenum beneath the tongue was clipped in the attempt to overcome the trouble. Today the term tongue-tie has no meaning. Instead of clipping of the frenum, the speech is analyzed to discover the nature of the defect. If necessary, the retraining may include exercises for stretching the muscles of the tongue.
8. Should your child learn French or German, Bohemian or Italian with his English?
   When the second language has a place of honor and respect in the family, there is no reason why the well adjusted child should not learn it. On the other hand, the speech specialist finds many speech defects in children from foreign homes in which the dual language is used.
9. Does your young son imitate the manners and speech habits of his temporary hero?
   This is a mere phase of development which he will outgrow if it is not given undue notice.



If the child is allowed to point rather than to ask for things he wants, his speech development will be retarded.

Sound substitution is a common defect of speech. The use of one sound in place of another, as *d* for *th* in "this" and "that" and *v* for *th* in "mother," is a condition which is either organic or functional, or sometimes both, in origin. If the cause is organic, there has been weakness or malformation in the speech organs as, for instance, the failure of teeth to close, an opening in the palate or paralysis in muscles controlling the larynx. However, more often than not the substitution of sounds is an excuse rather than a reason for poor speech, experience having demonstrated in many instances that the effect produced by structural malformation will yield to persistent speech training. Often this defect is the result of a speech habit acquired through hearing the careless speech of adults, or it may be traced to a prolonged period of "baby talk" when the pattern became fixed. Frequently it has its root in the emotional life; craving attention and affection, the child reaches back to the happy land of babyhood when the world was his. Later, when he discovers that he must earn this attention he finds the effort too great and, unconsciously leaning back on former successful methods, he uses the speech of babyhood days.

Sound substitution due to the organic cause of deafness in early childhood results from inability to register the correct sound; the child repeats what he thinks he hears. In order to insure permanent correction, attention should be given not only to speech training per se but to physical and mental hygiene, and particularly to mental hygiene because of the emotional factors involved. Thus the "whole child" is studied, and an unwise emphasis is not placed on speech. The true speech trainer works constantly on the personality of the individual, for it is necessary to eliminate the cause behind the effect and, once the physical disability is removed, the cause may prove to be one or more of a great variety of long established habits or notions.

Oral inactivity, sometimes called indistinct or slovenly speech, is the attempt to talk from behind closed teeth. This seeming rigidity in the musculature of lips, jaws and tongue is present frequently in timid children. Like the ostrich who hides his head in the sand to escape notice, the timid child subconsciously attempts to shut out the world by failing to make contact with it. Such a child needs much in the way of confidence building, and any points of excellence he may possess should be stressed and developed. A happy recognition of these points helps to overcome his feeling of inferiority and, his spirit strengthened, the outward symptom which manifests itself in speech may disappear as does the rash when chickenpox has run its course. With this condition, definite speech exercise is helpful if it is coupled with appreciation of the beauty of the art. The conception of speech as a thing of beauty, like the creation of music or the making of an exquisite picture, aids greatly in mastering its use.

Oral inactivity may be organic in origin because of weakness in speech organs during the learning process; however, the cause may have ceased to exist while the effect in the form of indistinct speech continues. In any case the cause should not be brought to the child's attention during the process of reeducation. Under the direction of the speech worker the home may carry on helpful exercises for control and development of the tongue muscles. It has been found that books with alluring colored pictures and success charts which record the child's daily progress will stimulate his interest in the task.

The frontal lisp and the lateral lisp, or the lisp due to open spaces between front or side

teeth, usually yield to training in sound formation.

Hoarse voices frequently are pathologic in nature and should be treated by a medical man experienced in laryngology. Until the physical condition is determined by the physician, any attempt at speech training may be harmful.

If delayed speech is not the result of lack of intelligence, it can usually be traced to lack of stimulus in the child's environment. Performance tests applied by a psychologist determine the intelligence, and if a normal condition is indicated, the child's psychologic development should be studied and treated. Failure to develop speech by the age of 2 is an unnatural condition for the intelligent child and should not be allowed to continue. It is easy to see that if everything is done for a child that he could learn to do for himself, the development of speech may languish. Sooner or later he must make his adjustment to the group outside his home; and when he finds that his behavior technic does not work, the shock will be great. It may result in a reputation among his companions for being "queer," with resulting unhappiness.

Perhaps the most handicapping of all the disorders under consideration is the stutter in its various forms. It is seldom the result of organic weakness. That it is emotional in nature is evidenced by the fact that a stutterer may speak to his companions with ease but may be unable to speak clearly to his teacher. Some children stutter only in the classroom; others do so only in the home. No one who works with stutterers can fail to appreciate the emotional maladjustment, which is invariably present, and the resulting sense of inferiority.

In order to deal with this inner conflict which manifests itself in the outer symptom of stuttering speech, it is necessary first of all to make a careful study of present and past environment back through school and home life even to babyhood or earlier. To discover the disturbing factor not only calls for wisdom but demands much patience and a sympathetic understanding of child nature. Whatever the elemental cause, and it may be one or more of a great variety of things, a course of treatment includes primarily a process of mental reeducation.

Children who are the products of divided homes and whose early years have been spent in an atmosphere of tension, criticism and quarreling often carry the scars in the delicate mechanism of speech which breaks down under the strain of inner conflict. A speech difficulty developed during the sensitive period of adolescence may be based on nothing more valid than the child's fear of a teacher and his consequent dislike for going to school, or the fear of his parents' displeasure if he should drop out of school. Sometimes one child of a pair of twins will stutter as the result of constant and perhaps invidious comparison. Sometimes there is the "inward stutter," not manifested in speech but revealed in an avoidance of speech because of the fear of stuttering. The degree of the symptom, in other words the extent of the stutter, is not always indicative of the seriousness of the cause.

The opinion is commonly held that the average intelligence of the stutterer is less than that of the individual endowed with normal speech. This in itself is a tremendous disadvantage and is a point of view that is not sustained by any research so far made. On the contrary, in a comparative study, which I made in Madison, Wis., in 1930, I found that of the intelligence quotients of seventy-five stutterers, sixty-three were average or above average:

Intelligence Quotient	Number of Stutterers
69 and below (mentally deficient)	1
70-79 (borderline)	2
80-89 (dull)	9
90-99 (normal)	16
100-109 (high normal)	28
110-119 (bright)	12
120-129 (superior)	6
130 on (very superior)	1

(Continued on page 1143)

Success charts which record the child's daily progress will stimulate his interest.

A Housewife Looks at the Committee on Foods

By Doris W. McCray

XV. Committee Acceptance of Sweets, Sugars and Syrups

GOOD EATING plays an important part in the general holiday festivity. When so many sweets are available, the careful housewife questions which ones are best. How can she be certain that candies are clean? What about the wholesomeness, and just how do sweets fit into the diet of both old and young? How much candy is enough?

The happy holiday spirit should not be spoiled by little or big "tummy" aches. The children should be allowed to pull taffy, toast marshmallows and make pop-corn balls for amusement, with certain limitations as to the time of day and the amounts of these foods to be consumed. Wholesome candies may be bought, or they may be cooked in the home kitchen.

After careful consideration of the problem of sugar, syrup, candy and other sweets in the diet and after thorough study of the most recent scientific literature on the subject, the Committee on Foods, a group of outstanding men and women in the field of nutrition and medicine, has authorized publication of the following general decision:

> The adequate nutrition of children and adults requires careful selection of foods both as to kind and as to quantity. Each type of food has a proper place in the diet. A well balanced diet, including ample proteins, fats, carbohydrates, minerals, vitamins and roughage, is one of the prime requisites for growth and health. Sweets consisting essentially of sugars are likely to be taken in excess because of their highly pleasing flavor. They supply energy only for body activity. Although sweets are wholesome and valuable foods when given their proper place in the balanced diet, they contribute few or none of the structural components required for good nutrition. Common concentrated sweets used to excess are harmful, especially in the case of children, so far as they impair the appetite for other highly necessary foods and lead to a reduced intake of milk, eggs, fruits, vegetables, meat and cereals.
>
> Food advertising that obscures the facts of good nutrition by encouraging too liberal use of sweets should be condemned.

Advertisers are liable to become a bit too enthusiastic in the promotion of their wares and to present fiction rather than fact in the sale of good food. The Committee requires that clean, wholesome food, produced under sanitary conditions, shall be protected and marketed in wholesome condition and that it shall be advertised in a straightforward and truthful manner.

The name of a product should not mislead the customer into thinking it is other than what it is. A candy, named to give the impression that it had a high vitamin content, was wrongly designated. Another candy was named to give the impression that it contained butter, whereas it actually contained peanut butter. When these facts were brought to the attention of the manufacturers, they were unwilling to change the names; therefore the candies were listed as not acceptable in the section of *The Journal of the American Medical Association* devoted to the Committee on Foods.

A long list of accepted sugar products will be mailed to those interested in choosing clean, honestly represented foods for their families; the usual 6 cents for mailing is required. There are many flavors and kinds. The list includes some candies especially planned for children and a favorite old brand of milk chocolate bar.

The "all-day sucker" is an unsanitary item as ordinarily manipulated in the hands of a child. Ropes, dolls and various items made of tough black licorice candy are not recommended, nor are any toys made out of candy that are first played with and afterward eaten.

The Committee on Foods of the American Medical Association requires proof that the candy complies with requirements of the Federal Food and Drugs Act, which states:

> An article shall be deemed to be adulterated, in the case of confectionery, if it contains terra alba, barytes, talc, chrome yellow, or other mineral substances or poisonous color or flavor, or other ingredient deleterious or detrimental to health, or any vinous, malt, or spirituous liquor or compound or narcotic drug.
>
> For the purposes of this Act, an article shall be deemed to be adulterated, in the case of food:
>
> First, If any substance has been mixed and packed with it so as to reduce or lower or injuriously affect its quality or strength.

Second, If any substance has been substituted wholly or in part for the article.

Third, If any valuable constituent of the article has been wholly or in part abstracted.

Fourth, If it be mixed, colored, powdered, coated, or stained in a manner whereby damage or inferiority is concealed.

Fifth, If it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health: Provided, that when in the preparation of food products for shipment they are preserved by any external application applied in such manner that the preservative is necessarily removed mechanically, or by maceration in water, or otherwise, and directions for the removal of said preservative shall be printed on the covering or the package, the provisions of this act shall be construed as applying only when said products are ready for consumption.

Sixth, If it consist in whole or in part of a filthy, decomposed or putrid animal or vegetable substance.

Butter, vegetable oil, shredded coconut, nuts and the many ingredients that go into the manufacture of confectionery must be clean, fresh and in compliance with the law.

The same federal law states in regard to colors and preservatives that:

(a) Only harmless colors and harmless preservatives may be used in articles of food.

(b) A color, preservative, or other substance, even though harmless, shall not be used in the preparation of any article of food in a manner whereby damage or inferiority is concealed.

(c) The Secretary of Agriculture shall determine from time to time the wholesomeness of colors, preservatives, and other substances which are added to foods, and shall make public announcement, in such manner as he may deem appropriate, of the results of the investigations. When so published the results of the investigation shall serve as a guide in enforcing the Act.

(d) The Secretary of Agriculture may authorize the certification of colors found by him to be in compliance with the law and these regulations.

Enforcement of the food law is particularly important to mothers. Seizure proceedings are instituted against foods flagrantly in violation of the law. Important seizures have recently included candy containing alcohol. The clause of the Food and Drugs Act prohibiting the use of alcohol in candy has been in no way modified by the repeal of the prohibition law. Candy containing alcohol is particularly dangerous, since it is sold to children of school age and younger, and it may establish the habit of craving for alcohol.

Nothing touches the heart and the interest of a mother so much as the health and habits of her growing child. It is not possible for her to go to the far corners of the earth to see for herself how the spices, coconut, chocolate and nuts are gathered and prepared, to see that the butter and cream are produced in clean dairies and to investigate the manner in which the sugar is refined before it is made into the candy bar that her youngster purchases at the corner store. Yet it is her privilege to choose wholesome manufactured candy bearing the Seal of Acceptance; and when she chooses sugar, syrup and other foods that go into the making of homemade candy, it is possible to select brands of foods that have been accepted by the Committee on Foods of the American Medical Association.

Sugar is defined by the U. S. Department of Agriculture as "the product chemically known

Both homemade and commercially manufactured sweets may be wholesome, colorful, delicious and nutritious. These glacé fruits, cherries, apricots, prunes and pineapple, fulfil all these requirements.

as sucrose, or saccharose, chiefly obtained from sugar cane, sugar beets, sorghum, maple and palm." Granulated, loaf, cut, milled, and powdered sugars are the various forms of sugar and contain at least 99.5 per cent of sucrose.

A granulated sugar accepted by the Committee is reduced to a fine powder and packed as powdered sugar, generally used for iced beverages, for fruits and cereals and for powdering doughnuts, cookies and pies; it is excellent for sweetening fresh strawberries or raspberries. Exceptionally fine powdered sugar, mixed with approximately 3 per cent of cornstarch, is packed as confectioners' XXXX sugar for icings and frostings.

The moist crystals of refined cane sugar are molded into desired forms that are dried with hot air, cooled and packed in cartons as hostess tablets, loaf sugar or party cubes.

In the manufacture of the brown and yellow sugar, the moist, soft sugar containing varying amounts of the original syrup is cooled and graded according to the degree of color of the finished product. Darker syrups contain less sucrose and correspondingly greater amounts of invert sugar, a natural mixture of dextrose and levulose. These sugars possess some of the mineral salts and flavor of the natural sugar cane syrups.

Vacations and holidays bring youngsters trooping into the kitchen to pop corn, make candy and toast marshmallows—and the little electric marshmallow toaster is a great help! The careful housewife will see that her shelves are well stocked with pure, nutritious products to help make happy holidays.

The claims for one brand of brown and yellow sugars accepted by the Committee on Foods of the American Medical Association follow:

> These refined sugars possess a molasses-like flavor and a yellowish or brownish color, contain slight amounts of fructose and dextrose and mineral salts naturally found in the original cane juices. The ash content of the dark sugar is approximately one and a half per cent, and that of the yellow sugar one-half per cent.

As soon as the package of sugar is opened, the contents should be put into a tight can or jar to prevent evaporation of moisture from the sugar and the formation of hard lumps. If brown sugar becomes hard, mashing it with a rolling pin will readily break it up; it may then be creamed with the shortening for cake or cookies.

Molasses is the product that drains from sugar in the process of manufacture; it contains not more than 25 per cent of water and not more than 5 per cent of ash. Molasses gives to gingerbread that rich, pungent odor, characteristic of the unrefined sugar cane. There is a world of difference in molasses, and this accounts for some of the strong, odorous baked foods produced in the North by housewives who simply call up the grocer and ask for a "can of molasses." A low grade molasses is strong, black and odorous. A high grade molasses has a mild, aromatic odor that is truly delicious and tempts one to linger over the open can to enjoy its fragrance. Aside from observing the odor, which cannot be done until the can is opened, my advice for selecting good molasses is to look for the Seal of Acceptance on the can of molasses, which is a seal indicating a clean product and ethical advertising. There is a quality of molasses on the market that can be obtained only in stores that cater to exceptionally high class grocery trade; it bears the Seal of Acceptance and is superior for taffy and gingerbread, which owe their quality to the delicacy of the molasses flavor.

Cane syrup is made by the evaporation of the juice of the sugar cane and contains not more than 30 per cent of water and not more than 2.5 per cent of ash. The label on one brand states that it contains sulphur dioxide. The Seal of Acceptance on the label assures one that, although it contains added sulphur dioxide for bleaching purposes, the syrup is harmless.

Maple syrup is made by the evaporation of maple sap and contains not more than 35 per cent of water and weighs not less than 11 pounds to the gallon. It is used to flavor syrup for table use. Vanilla is also used as a flavoring for corn syrup and cane syrup. A small amount of salt may be added for seasoning.

Corn syrup is not nearly as sweet as cane sugar syrup; hence it is often sweetened with refiners' syrup or with sugar syrup as ordinarily marketed. Refiners' syrup is one of the liquid by-products obtained in the process of refining raw cane sugar; it contains not more than 25 per cent of water and not more than 8 per cent of ash. Sugar syrup is the product made by dissolving sugar to the consistency of a syrup; it contains not more than 35 per cent of water.

Many of the syrups on the accepted list consist of 85 per cent corn syrup and 15 per cent refiners' syrup. The mixed syrup is heated to pasteurize it and is automatically packed into cans, which are sealed and remain hot for a considerable time. Spoilage does not occur in the sealed can, and it is not likely to occur within a reasonable time after the can is opened in the home. However, it is safer with some kinds of syrup to store the can in the refrigerator.

Sorghum syrup is the syrup obtained by the clarification and concentration of the juice of the sugar sorghum; it contains not more than 30 per cent of water nor more than 6.25 per cent of ash. Corn syrup flavored with sorghum syrup is much milder for table use than the sorghum syrup alone.

Manufacturers of various accepted brands of corn syrup make such claims as the following: The syrup is "recommended for use as an easily digestible and readily assimilable carbohydrate supplement to milk in infant feeding and as a syrup for cooking, baking and the table." It is claimed by the manufacturer of a mixed syrup that the method of preparation and packing assure absence of pathogenic organisms.

Corn syrup is available in powdered form. It is concentrated, spray dried and packed in tins. It is useful for infants, invalids and convalescents because it may be added to other foods such as milk and is easily digestible. It is free from protein, although none of the syrups contain more than a fraction of 1 per cent of protein and only a trace of fat, if any. Sugar and syrup are almost 100 per cent pure carbohydrate with some moisture; there is about 0.1 per cent of moisture in granulated sugar and about 25 per cent in the various syrups.

According to information in a leaflet on golden and crystal white syrups, or corn syrups flavored with refiners' syrup or sucrose, which prominently bears the Seal of Acceptance of the Committee on Foods of the American Medical Association, this type of syrup is ideal for modifying cow's milk for infant feeding as it requires little digestive action. Selection of the right kind of sugar is extremely important, and corn syrup is often recommended by a physician for this purpose after he has noted the condition of the individual infant. It is important to follow his orders carefully and avoid incorrect measurement. This may be accomplished by dipping a spoon into the syrup and using it to fill a measuring spoon, thus avoiding the excess syrup that would cover the under side of a spoon dipped directly into the syrup. One level tablespoonful of corn syrup weighs approximately ½ ounce and furnishes about 70 calories. During the first year of the child's life, the physician's orders in regard to the feeding of sugar must be followed meticulously; later, when the child is normal, corn syrup may be fed in the same manner as sugar or candy. The active, healthy child requires more food for each pound of body weight than does an adult; and appetizing syrup provides a method of getting the child to take calories in addition to those provided by the bulky foods. Not only does the child require proteins and minerals as supplied in the adequate diet to build bone and tissue, but his constant activity requires foods giving heat and energy in abundance; these are the sugars, starches and fats. Children have a natural craving for sweets. This may be satisfied, provided no other foods are neglected in the diet. The correct time to offer the child a piece of candy is at the end of a meal. Sugar has the power of satiation. If the last course of the meal is sweet, there will be less desire to eat between meals. Sugar is what makes those simple milk and egg puddings palatable for children.

Sugar furnishes quick relief for fatigue due to lack of caloric nourishment. In this rôle, it may be given to a child between meals, provided it does not interfere with the intake of a sufficient quantity of other necessary foods and provided it is not given immediately preceding a meal so that it dulls the appetite. Sugar is the most rapidly burning fuel that can be fed to the stomach.

For instance, marathon runners are supplied by their trainers with candy and sweet fruit juice, in order that they may have food energy to draw on at the end of the race. Hikers will find that candy bars keep up their enthusiasm. A little candy acts as an immediate stimulant to the hard working business man and has no harmful effect, provided it is not consumed in too large quantities. Sugar reaches the muscles in from ten to thirty minutes after it is eaten.

One pound of granulated sugar represents 1,824 reasonably priced calories. While it would be entirely out of the question to supplant other foods with sugar, it is a valuable supplement to the diet. Those who are attempting to maintain their normal body *(Continued on page 1146)*

Structural Abnormalities of the Eye

Chapter VI of

THE EYE BOOK

By *Hyman Cohen*

EVERY ONE is familiar with the exchange of colloquial buffoonery: "Why don't you look where you go?" "Why don't you go where you look?" A proverbial quip, "He looks at sugar and buys pepper," illustrates a fact and an attitude, both accusingly pointing to common ignorance, carelessness and neglect. The fact is that many children are still allowed to grow up with crooked eyes; the attitude is still that of comic amusement at the expense of many young hearts burning with pain and chagrin.

Persons so afflicted are called cross eyed, wall eyed or squinters. Strabismus is the medical term for the condition. It is responsible for much impairment of sight, great unhappiness and loss of many of life's opportunities. It is not a visitation from heaven, nor is it due to the intrenched lurkings of the evil one. Doubtless, some of the "witches" burned at the stake had only this one qualification for witchcraft. Today, children afflicted with cross eye are still made to suffer if the condition is not corrected; later they are punished in all manner of ways.

There are various means for the correction of the many types of squinting eyes. There is a mistaken notion that children "grow out" of squint, but in reality, they "grow into" it; that is, the condition becomes aggravated.

Not infrequently a young woman of bride age and bride mind comes to seek help for a squinting eye. Or a young man who does not want to be counted out in life appeals to the physician. The help that can be given them at that late day is only partial; the eye can be straightened, but it is too late to improve the vision much. The problem is up to parents, in the first place, although health educators can help.

Normal Eyes Work in Harmony

Most eyes "go straight" naturally. The eyes in normal relationship to each other look straight ahead for distance and look down a bit and draw together for near vision. They always remain parallel and always move together, the one with the other, whether the direction of the gaze is from side to side, up or down, or obliquely up and down. There is a reason for this.

When both eyes "fix" on an object, each receives the image of the object on its retina. When a person looks at a doorway, for instance, the image of it is perceived by the right eye and again by the left. If that person saw two doorways, since there are two images formed, and should decide to enter the doorway with the two images of it in his mind, confusion would result. What is the solution to the difficulty? It is that the images of the two eyes must coincide; they must fall on exactly the same point in each retina, so that they become superimposed, are fused in the brain and are seen as one. The normal person looks at one object, perceives two, and sees one. That, in contradistinction to the mode of sight in many other forms of life, is the ideal of human vision.

"Quite natural," most persons would say. Yes, if one does not stop to think of the extremely delicate and constantly operating mechanism that maintains this straightness of the eyes. If one does stop to think, one will say, "Natural, yes; but how marvelous!"

How the Delicate Balance Is Maintained

This delicate balance, which makes the two eyes function as one in repose and in action, is maintained by the muscles that move the eyeballs. Each muscle contracts and turns the eyeball in a certain direction by pulling on it, or relaxes and allows the pull of the muscle opposing it, much as the action of the reins used in governing the heads of horses in a team. There are certain main movements of the eyes that they must always execute together, and the muscles fall into groups for the purpose of accomplishing these movements. There is a lively, constant, almost instantaneous pull and swing in one direction or another during waking hours. Now one set of muscles pulls to the right and the set on the left lets go, and now it is the reverse; the same principle operates upward or downward. All is done with the same steadfast purpose of keeping the two eyes in perfect alinement to achieve the ideal of vision, single sight with both eyes.

In cases of squint the delicate mechanism and the balance between the two eyes are upset. The eyes are no longer straight; the harmony is broken down. One eye looks straight ahead but suspects the other of not doing its share. The other acknowledges the defection by looking, with a queer guilty side glance, at its mate, or peevishly, away from it.

There are several types of strabismus. Cross eye, or convergent strabismus, is the term applied when an eye turns in toward the nose. Wall eye, or divergent strabismus, occurs when an eye turns out toward the ear. The eye may squint up or down. The eye may also suffer from a combination of squint when more than one muscle is involved; it may look in and up, in and down, out and up, out and down, and in a cyclic direction, such as that of a wheel out of alinement on its axle, and oscillating one way or another. To squint means literally to shrink from or to avoid. Only one eye or both may squint; sometimes they alternate. Again, an eye may squint only occasionally, usually when it tires. In some persons the squint becomes more pronounced when they are looking at a near object, in others when they look at a distant object. This depends on the kind and degree of derangement of the mechanism governing the movements of the eyes.

Any one can tell an outright, manifest turning of the eyes in one direction or the other. The squinting eye certainly does not look a person straight in the face, but it has an uncanny way of calling attention to itself. This indicates that something is wrong, and the problem is to figure out exactly what is wrong and how to correct it.

Many cases of squint were, at one time, merely potential squint; that is, the eyes were straight, but there was a tendency to squint. There are many children whose eyes are straight now in whom squint will later develop.

How can one tell? The following is a simple test. The person examined keeps both eyes open throughout the test. The palm of the hand should be placed before, not on, one eye, and then quickly removed. If there is no tendency to squint, the eye will remain in its normal position and be found still looking straight ahead. However, if, as the eye is uncovered, a shifting of the eye is noticed, either away from the nose or away from the ear back to the middle line, then there is a tendency to squint. If the shifting noticed is away from the nose, then while the eye was under cover, it squinted toward the nose. If the shifting is away from the ear, then the eye squinted toward the ear while it was covered.

What happens in such instances is this: The eye that is screened, urged by some peculiarity of its own, escapes for the moment from the teamed harness that keeps it straight when the two eyes are open and act together. It defaults. It seems that the eye, like some human beings, will do things under cover that it would not do in the open. It "plays hooky," goes on its own and lists where it wills. One eye only may behave so, or the two eyes may independently and alternately act in the same way, each cutting adrift from the other in its action while it "imagines" it is not observed. In their waywardness the two eyes may show their predilection of peeping aside in the same manner, inward and outward, or one may shoot out and the other one in, up or down, or obliquely up or down. In other words, while under cover they may turn from the straight line in any direction that a frankly squinting eye turns. Potential squint may remain latent and never become a confessed squint, or, if the provoking cause is sufficiently strong to overcome the influence of the fellow eye, the bad eye may break away from that governing influence and produce a permanent squint of one of the several types. Essentially the causes of confessed squint and the hidden tendency to cross eye are the same. Whether a permanent, frankly recognizable squint develops or whether the eye displays only a tendency toward it depends solely on the strength of the untoward factors involved.

The attitude of comic amusement still called forth by crooked eyes causes many young hearts to burn with pain and chagrin.

Having a crooked eye is harm enough, but there is further harm in squint. If the two eyes do not alternate in squinting, but instead, the same eye squints all the time, then the squinting eye does not see well; and if prompt correction is not made at the earliest possible time, the vision further deteriorates until poor sight develops and remains permanent.

The physiologic harmony of the two eyes seeing as one is broken up, and double sight, or diplopia, in which two images are seen instead of one, results. The image of the straight eye is distinct, or true; the image of the squinting eye is fainter and shadowy, or false. This causes blurring, confusion of sight and uncertainty in direction. By a process of will the false image produced by the squinting

To force the poor eye to straighter and better sight, the child may read with the good eye closed. Reading aloud will keep the eye and attention focused on the task.

eye is finally suppressed. This practically puts the poorer eye out of action and so still further reduces its ability to see. Since double sight is confusing and must be overcome, an attempt is here again made to eliminate the confusing condition by turning the head to the side. This results in a tilting of the head, which gives the appearance of torticollis, or wryneck, and lends an unnatural aspect to the victim. Nervous irritation also results. This manifests itself in dizziness, headache, nausea and a general feeling of being tumbled about.

The causes of squint are many. An abnormality in any of several parts of the visual apparatus may be responsible for it. In some instances the eye does not make any effort to overcome the difficulty; it is laggard, prefers the easier way and turns aside. In other cases it tries to look straight in spite of the obstacle and develops a squint because it does so.

Specifically the causes are as follows:

1. Errors of Refraction.—Extremely short eyes require a more than ordinary effort to focus for near objects. In such instances the eye is forced toward the nose because the mechanism of accommodation that is brought into play always acts together with that for drawing the eyes closer toward one another. The eye gets into the habit of turning in and away from the straight line; squint is the result. In astigmatism of high degree the sight is blurred and objects cannot be seen distinctly, so the eye gives up trying and escapes on a side path. When there is a great difference in the sight of the two eyes, the poorer eye finally gives up the effort to keep up with its fellow; the partnership splits, and the poorer eye turns aside from the race.

2. Errors of Nerve-Muscular Origin.—One or another of the muscles that move the eye may be weak or paralyzed. It fails to do its share of pulling and to cooperate with its fellows. Frequently this is due to syphilis, occasionally to a birth injury, or to anything that damages the nerve. In letting go, it allows the other muscles in the see-saw arrangement of control to pull the eye out of line. Or a muscle may be stubbornly overactive and pull with greater force than it should, again upsetting the see-saw balance.

3. Perceptive Deficiency.—Disease of the retina at the sharpest seeing spot puts the eye at a disadvantage in seeing objects clearly. Since its sharpest seeing area is damaged, it tries to obtain second best or third best sight with some other part of the retina. In so doing, the eye, of necessity, turns from the straight line.

4. Opacities.—Sometimes in cases of squint both the nerves and the muscles are in themselves in good working order, but there is an opacity in the line of vision. The eye squirms and shifts, tries to overcome the obstacle and turns one way and the other in its attempt to see clearly; consequently a sort of compulsory squint is established.

5. Dimmed Vision.—When for any reason the appreciation of light is much less in one eye than in the other, the poorer eye drifts aside.

6. Faulty Fusion.—The ability to fuse the images of the two eyes into one is poorly developed in some persons. Their eyes cannot, or cannot always, help each other in effecting single, clear vision. In the confusion they lose each other, and each goes blunderingly on its own way.

7. Age.—Most cases of squint come on during early childhood, sometimes after a weakening illness, such as diphtheria, measles or scarlet fever.

8. Familial Tendency.—Frequently more than one child in the same family has cross eye, a familial weakness of structure or organization.

It is not possible to remove quickly the various deep lying causes that produce squint. As nature and environment sometimes combine to produce excellences, so they sometimes conspire to produce weak spots in an organism. When the latter happens, the condition resulting can rarely be overcome.

However, many cases of latent cross eye, potential squint, can be prevented from becoming confessed and established squint through the routine examination of the eyes of all children at an early age and the institution of the necessary and forestalling measures. This is the one and only effective procedure, and if it were generally carried out, it would save thousands of children yearly from becoming cross eyed. If squint is treated early, the tendency toward entering on the crooked path can in most instances be halted. The means of stopping a tendency to cross eye depends on the underlying causes in each case as revealed by examination. Corrective measures are generally the same as those employed in the treatment of declared, actual squint.

Parents should be watchful for certain evidences of oncoming squint with reference to such questions as: Does the child incline his head to one side while looking at objects? Is he in the habit of closing one eye when he looks at objects or when he tires? Does one or the other eye shift from the middle line when the baby tires or begins to grow sleepy? When there is squint in one of several children in the family, all the other children should be examined without delay for the possible masked existence of the same condition.

Delay in Treatment Is Inexcusable

Certain things must be emphasized, even at the risk of repetition. The treatment for squint must be begun as soon as it is recognized. Parents who for one reason or another delay or postpone helping a child whose eye is turning crooked are guilty of inexcusable neglect.

Cross eye does not improve of itself as the child grows older; the tendency is for the condition to become worse. In some cases the eye may be straightened later, but its power of sight is gravely impaired. While the parents are waiting, dilly-dallying, listening to misleading neighbors' tales, the ability of the eye to see well is lost, never to be regained.

Poverty is no excuse for delay. There are eye clinics and competent specialists in all the larger centers of population. Treatment and directions for continuing treatment at home may be had free at any of these clinics.

The curse of cross eye can be removed from afflicted children by the vigilance and courage of their parents. The successful treatment and correction of some types of cross eye requires time and patience, the painstaking adherence to instructions. It is perhaps not too severe to put the following principle down as true: "Show me a cross-eyed child, and I'll point you to a parent who has failed in his duty."

The treatment of cross eye is prescribed according to the nature of the cause in any particular instance or variety of cross eye. Any one case may require all the resources known.

Glasses are among the means available for the treatment and cure of cross eye. The majority of squints are due to a marked error in the refraction; this may be farsightedness with its short eye, certain instances of nearsightedness, astigmatism of one kind or another, or a difference in the vision of the two eyes.

The effect of glasses in such cases varies with the type and degree of squint, the complicating factors and the constancy with which the glasses are worn, as well as with the other accessory means that are employed at the same time to straighten the eye.

In any case the use of glasses will have one of the following effects: 1. Glasses may straighten the offending eye or eyes completely; and if they are employed at an early age, they may preserve normal or nearly normal sight. In favorable cases the influence of glasses is almost magical; the eyes straighten immediately and stay straight while the glasses are worn. Potential squint is arrested, as is also the kind of squint that has not as yet become constant. When the glasses are removed, the squint again becomes manifest. 2. If the squint is permanently established and constant, there may be only a partial straightening, which will improve still further in the course of time, especially if other means of treatment are employed at the same time. The chance for much improvement of vision in such cases is not good. 3. In paralytic squint, or in cases in which there is a much weakened muscle, glasses are of no avail. Glasses should be worn by squinting children after the age of 2.

Periodic Examination Is Necessary

Examinations for glasses in all cases of cross eye should be made with the aid of "drops." There should be reexaminations once every year. Glasses must be full strength and must be worn constantly. The child should be taken to the eye physician once every three months for the measurement of the squint with and without the glasses and also for the taking of the vision with and without glasses in cases in which the child's age makes it possible.

Fixation exercises also help the poorer, squinting eye, to fix objects. To force the poor eye to see straight and see better, the good eye should be covered by a bandage or eye patch for at least an hour twice a day. The correcting glass over the poor eye must be worn at the same time. If the child will not keep the bandage on, drops prescribed by the eye physician can be used to blur the sight of the good eye. The poorer eye, not having the good eye to work for it, stops loafing on the job and in the course of time may show great improvement. This is a home measure and must be followed out daily over a considerable period of time, possibly months. It requires time and patience on the part of the mother. *(Continued on page 1150)*

TUBERCULOSIS and the KINGS of FRANCE

Part II
THE HOUSE OF BOURBON

By *James A. Tobey*

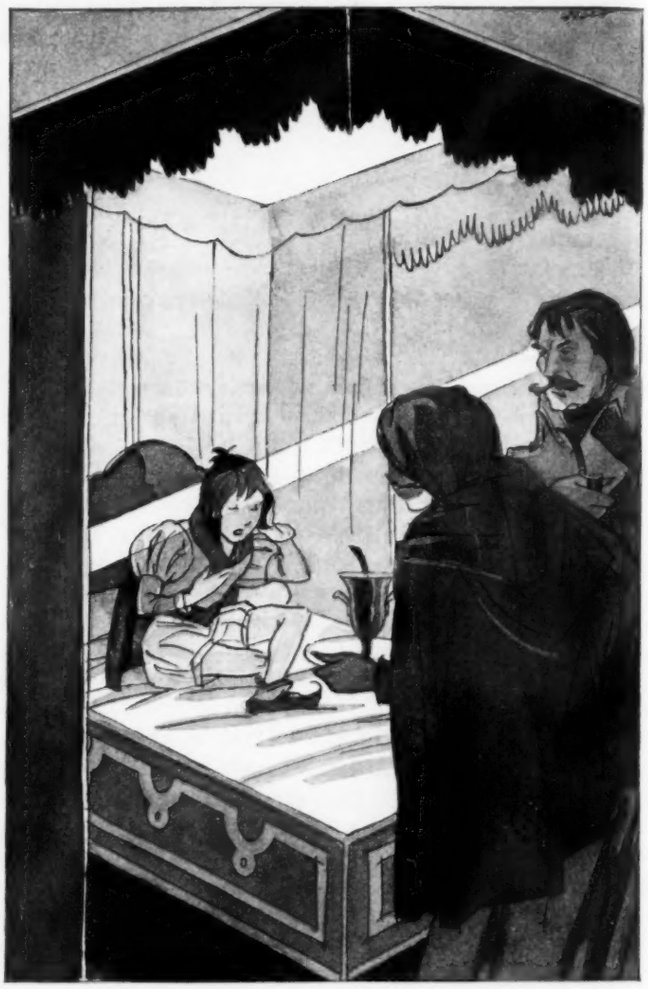
DURING the long reign of the House of Bourbon in France, tuberculosis played the same important rôle that it had enacted among the members of the House of Valois in the preceding two and a half centuries. From the time of Henry the Great to that of Napoleon III, the threads of this disease ran through the careers of the kings of France and their families, so that hardly a generation escaped its ravages.

In 1589, when the dagger of a fanatic assassin caused the death of Henry III, last of the Valois, the Salic Law ruled that the throne should go to the nearest male heir of a French king. In this instance, the successful claimant was Henry, king of Navarre, a descendant of Louis IX through Louis' sixth son, Robert, who had married Beatrix, the heiress of Bourbon. Henry was the second son of Antoine de Bourbon; an elder brother had died at an early age.

The mother of Henry IV, Jeanne d'Albret, died of a tuberculous disease; and Henry's son, Louis XIII, succumbed to a similar malady. After a notable reign of twenty-one years, Henry the Great was assassinated by Ravaillac in 1610. He had six children by his wife, Marie de Medici. Henry, the second child, died at the age of 4 years; and another son, Gaston, was afflicted with smallpox in 1619, but he recovered.

Louis XIII, who succeeded his father, became a chronic dyspeptic, apparently as a result of a tuberculous enteritis. French medical historians differ as to whether the infection was primary or secondary, but all are agreed that it was the cause of his death in 1643, half a year after that of his great minister, Richelieu. Louis had been married in 1615 to Anne of Austria, daughter of Philip III of Spain, who bore him no children until twenty-three years later, when the future Louis XIV was born. Queen Anne died of a cancer of the breast in 1668.

Louis XIV, often called the Great, enjoyed a reign of seventy-two years. He came to the throne at the age of 5 and departed from it in 1715, when he died of senile gangrene at the age of 77. He was the greatest of the Bourbons and, unlike most of them, suffered from comparatively few serious afflictions. In 1660 he married Maria Theresa of Spain, although he also had a series of mistresses, of whom Louise de la Valliere, Madame de Maintenon and Madame de Montespan were the most famous.



After the execution of Louis XVI and Marie Antoinette, their second son was incarcerated in the Temple under the care of a shoemaker named Simon and his wife. Here at the age of 10 years, he died of tuberculosis.

The rule of Louis, the *Grand Monarque,* was so long that his successor was his great grandson. His eldest son, generally known as the Grand Dauphin, succumbed in 1711 to an eruptive disease that was undoubtedly smallpox. The Grand Dauphin's wife, Marie of Bavaria, died of tuberculosis in 1690. Their son, the Petit Dauphin, died in 1712 of measles during an epidemic that was likewise responsible for the demise of his wife, Marie Adelaide of Savoy.

The children of Louis, duke of Burgundy and grandson of Louis the Great, were a sickly lot. One son died at 6 months, and another, Louis, died of measles at the age of 5 years. A sur-

viving son, who was to become Louis XV, was so weak and frail that his life was despaired of on more than one occasion. He was 5 years of age when he became king of France in 1715 under the regency of the duke of Orleans, nephew of Louis the Great.

If Louis XIV was the most illustrious of the Bourbons, Louis XV was unquestionably the least so. He gave himself up to sensual pleasures, during the course of which he contracted syphilis. His life was one long exhibition of extravagance, profligacy and maladministration of the affairs of state, affairs in which his mistress Madame de Pompadour was more influential than any of his ministers.

Lecherous misconduct was responsible for the death of this worst example of the Bourbons. In 1774, when he was 64 years of age, the king sent his procurers to bring him a young girl. The victim, "hardly yet nubile" according to historians, happened to have smallpox. The king contracted it, and it proved fatal. The existence of the malady in his own royal person was incredible to the king as he thought that he had had it previously and that he was immune to the disease. Apparently he was mistaken, and thus ended a career that was the prelude to the French Revolution.

In 1725 Louis had married Marie Leczinska, daughter of the dethroned king of Poland. A son born to this marriage died in 1765 of tuberculosis. This son, also named Louis, had married Marie Therese of Spain, who died in childbirth. By a second marriage to Marie of Saxe, he had a son, Louis-Joseph-Xavier, who likewise succumbed to tuberculosis, his death occurring in 1761 at the age of 10 years. The dauphin, his father, left three other sons, however, all of whom were later to be kings of France, two of them reigning during the Restoration.

The unfortunate Louis XVI and his famous wife, Marie Antoinette, came to the throne in parlous times. Before they left it for the guillotine in 1793, the Revolution had developed in full force and the government of France was in the hands of the common people, acting through such chosen representatives as Robespierre and Marat. There it remained until the ascendancy of Napoleon I.

The first son of Louis XVI and Marie Antoinette was born in 1781 and was named Louis-Joseph-Xavier-François. He was inoculated against smallpox in 1785 and shortly thereafter began to display symptoms of a spinal trouble which proved to be tuberculosis of the spine, a malady which caused the death of the 9 year old dauphin in 1789.

A second son, also known as Louis, was born in 1785. When his august parents were executed, this boy was incarcerated in the Temple, at first under the care of a shoemaker named Simon and his wife but later in charge of a committee designated by the Commune. After several months of illness in a dark room, this 10 year old boy died of tuberculosis.

According to some historians, there is a question as to whether the child who died in this prison actually was Louis XVII. Evidence has been gathered to show that the real Louis escaped and that a sickly boy was substituted in his place. Dr. A. Cabanes, the eminent French medical historian, devotes many pages in his interesting book on the deaths of the kings of France to the theory that Louis was a healthy boy and that the person who died of tuberculosis must have been some one else. At any rate, various claimants to his name and position appeared in later years, although none was ever recognized and several were definitely proved to be charlatans.

After Napoleon's downfall in 1814 and his death from cancer at St. Helena in 1821, the Bourbons returned to France in the person of Louis XVIII, grandson of Louis XV. When Louis XVIII died in 1824 of senile gangrene, he was succeeded by his brother, Charles X, whose government was overthrown in 1830. Charles died of cholera in 1836 while sojourning in the Austrian Tyrol. With him ended the dynasty of the Bourbons. Henry, his son, had been murdered in 1820, and his grandson, another Henry, never ruled but died of cancer in 1883.

When Charles X was expelled in 1830, the Chamber of Deputies offered the throne to Louis Philippe, son of the duke of Orleans and a friend to the revolutionary movement. The citizen king ruled until 1848 when he, too, was forced to abdicate. Two years later, he died in England of pneumonia. His successor was Louis Napoleon, who eventually became Napoleon III.

The duke of Reichstadt, the only legitimate son of Napoleon I, died of tuberculosis in 1832 at the age of 21. Two brothers of Louis Philippe had also succumbed to the same disease; these were the duke of Montpesier, who died at Malta in 1807, and the count of Beaujolais, whose death occurred the following year. Another member of the Bourbon family who died of consumption was Alphonso XII, first of the kings of all Spain. His death took place in 1885, several months before the birth of his son Alphonso XIII, who was therefore born a king. He abdicated forty-seven years later.

During the 250 years of the rule of the House of Bourbon in France, which with the exception of the period of Louis XIV was mostly misrule, nine immediate members of the royal family died of tuberculosis. This record, bad as it was, had been exceeded by the members of the House of Valois who preceded the Bourbons as kings of France during the 250 years after the death in 1325 of Charles IV, last of the Capets. At least a dozen members of the ruling families of the Valois either died of, or suffered from, tuberculosis.

Twenty-one cases of tuberculosis in 500 years may not seem many, but when it is considered that practically all these occurred among the kings themselves and among their children, the mortality is unreasonably high and indicates the poor heredity and unfavorable environment of these royal personages. How many other cases of the disease occurred among collateral branches of these regal families is not known, nor can the number of cases of tuberculosis among royal individuals whose deaths were ascribed to other causes be computed.

Today the death rate from tuberculosis in its various forms is only a small fraction of what it was during the period when this disease was slaying the Valois and the Bourbons. If these monarchs had lived in the modern era, they and their children would undoubtedly have enjoyed greater chances of survival. Tuberculosis has ceased to be the "captain of the men of death," although there are still opportunities for its further reduction. The common citizen of today has far more chance to escape the disease or to overcome it than any of the kings of France had; and in that respect he is better off than were those misguided potentates.

[NOTE.—This is the second of two articles on "Tuberculosis and the Kings of France." The first article, which appeared in the November 1934 issue, dealt with the House of Valois-Orleans.]

HEALTHGRAMS ✣ from Articles in This Issue

¶ The possibility of an organic cause for every speech defect should never be overlooked. In no case should speech training begin until there has been a diagnosis by a physician and all necessary medical and surgical treatment has been given. *See page 1110*

¶ Today in addition to the 155,000 doctors in the United States there are about 1,250,000 other people who spend their full time in taking care of the sick. *See page 1070*

¶ To be adjusted happily during the middle years, it is usually necessary that the habits and attitudes of successful living are formed before the age of 20. *See page 1088*

¶ Not until 1841 was water pumped into New York city from the Croton reservoir. Before this it was sold for threepence a hogshead at the well near the head of Queen Street. *See page 1086*

¶ The sick, the infirm and the crippled were our prey and, aided by the postal facilities of an indulgent government, we went after them. Quacks were quacks in those days. *See page 1077*

¶ Today research in medicine as carried on in the United States leads all the world. *See page 1099*

¶ It is perhaps not too severe to put the following principle down as true: "Show me a cross-eyed child, and I'll point you to a parent who has failed in his duty." *See page 1118*

¶ Today no one who receives the proper treatment with liver extract, given by mouth or by injection, needs to die of pernicious anemia. *See page 1096*

¶ It is practically certain that today there are millions of persons with syphilis in the United States alone; a large percentage either do not know that they have the disease or believe that they have recovered from it. *See page 1106*

¶ Sugar furnishes quick relief for fatigue due to lack of caloric nourishment; it is the most rapidly burning fuel that can be fed to the stomach. *See page 1114*

¶ A badly infested room may be temporarily rid of fleas by sealing it up and burning sulphur in it; 4 pounds to every 1,000 cubic feet may be used. *See page 1091*

¶ Twenty-one deaths from tuberculosis occurred among the kings of France and their children during the 500 year reign of the Valois and the Bourbons. *See page 1122*

¶ In health education, the success of the individual teacher, school or system of schools depends to a considerable extent on the ability to measure the results. *See page 1130*

¶ Whatever affects the body affects the mind and the vital organs, and vice versa. *See page 1095*

¶ Only one-half as many babies die during the first year as died twenty-five years ago. *See page 1094*

"Christmas Comes But Once a Year"

Century-Allen

J. Jay Hirz

Century Photos

Century-Allen

AMBROSE O'PSHAW, *Detective*

By

NELLIE G. HERRIMAN

The Story This Far

AT FIRST, Ambrose O'Pshaw had been known as The Thinker; but when he had only one penny left, he decided he would have to earn some money, and so he made up his mind to become a detective. However, the villagers did not bring him their troubles until after he accidentally solved his own by falling into the rain barrel and discovering that he was terribly dirty. After he had made himself and his home presentable, the people of the village no longer made fun of him; in fact, in a very short time he had solved two important cases to his credit.

The first was that of Henry, the son of the Widow Merrywell, who had done nothing but sleep in the orchard with the pigs until Ambrose observed that too much rich food was the cause of Henry's downfall. Ambrose sentenced most of the Widow Merrywell's pots and pans to the attic for a period of twenty years so that Henry might gain back his former ambition and alertness through eating simple, healthful food.

A baseball team was involved in the second mystery. At the request of Robin Grabpenny, Ambrose set out to discover which of the boys on the neighborhood baseball team had thrown balls through three of Mr. Grabpenny's windows. Robin Grabpenny did not believe his son Johnny when he insisted that he had done it, because Johnny was the best player on the team and had the best arm. So it was somewhat of a shock to the miser to learn that Johnny actually had broken the windows. The detective explained that it was really not Johnny's fault that his arm had not shown its usual control in throwing straight, because Mr. Grabpenny, who did not wish to pay the milk bill, had made the boy drink coffee instead of his usual milk. Mr. Grabpenny thought coffee was cheaper; but Ambrose finally convinced him that it was expensive to trifle with a boy's health and nerves; so he paid the milk bill without saying a word and paid the detective for solving another mystery.

A splashing sound drew him to the window, and he looked out to see Mr. Robin perched on the edge of the rain-water tub, splashing water over his ruffled feathers.

Chapter IV

SINCE no new mysteries were brought to him for solution during the next few days, Ambrose spent the time at home. He puttered about the house and yard, putting things in apple-pie order until the little place was an example of extreme neatness.

"It looks very fine," he said to himself, "but that vacant spot behind the house should have some attention."

He walked into the village and came back with a package in his hand. After changing his good clothing for a pair of overalls, he attacked the vacant spot with a spade. Ambrose worked energetically, while his good friend, Mr. Robin, hopped after him and captured the worms that were brought to the surface by the flashing spade. The bird paused between worms and sang lustily. Singing at table may be poor manners, but we must admit that it had made an exceptionally plump bird of Mr. Robin!

After the warm earth was turned up to the sun, Mr. O'Pshaw opened the package, and a number of small envelops tumbled out. They were bright with color and rattled faintly when shaken.

"What wonderful things seeds are!" Ambrose said, tearing open the envelops and peering into them, one after another. "They look much

alike, yet from some will come vegetables to make me well and strong, while from others will come flowers to make me happy."

By sunset the little garden was smooth and neat and lined with little rows, each with its own envelop standing guard on a stick to proclaim to the world the kind of plant that might be expected to appear just there. Ambrose straightened up to survey his work and clapped his hand to his back with a grunt.

"Oh pshaw!" he groaned. "My back, my back!"

He walked stiffly to the porch, dropped to the step and groaned again, rubbing his sore muscles. The robin gazed at him over a bulging breast, which contained more worms than it had ever contained before. Mr. Robin was unusually quiet, perhaps because he was well occupied in digesting his huge meal. Or perhaps he was merely wondering whether he would ever again obtain so many fine worms with no labor on his own part.

The weary little detective looked down at his soiled clothes and groaned again at the thought that they had better be exchanged for fresh ones. Ho hum! How would he ever drag himself about to do his evening chores? At last he removed his shoes and shuffled in his stocking feet to his bedroom.

"I may as well have a bath while I'm about it," he thought. "I shall want one before retiring, anyhow."

When the water dashed against his skin, he knew the remedy for stiff, aching muscles. They seemed to become alive once more, and the blood raced merrily through his body. A brisk rub with a heavy towel made his skin glow, and he threw back his head and sang, "Oh—lee—lay—lee—oh!" A splashing sound drew him to the window, and he looked out to see Mr. Robin perched on the edge of the rain-water tub, splashing water over his ruffled feathers. Evidently Mr. Robin also had learned what to do for that "tired feeling"!

The next morning Ambrose awoke with the thought that he would like to do something unusual. His home was neat, his chores were done and the garden would grow quite as well if there was no one there to watch it. The people of So-So would have dropped their lower jaws in astonishment if they could have seen what he did next. He went into the woodshed, and a great bumping and puffing announced that he was piling up boxes and climbing on them. After a little time a long pole was thrust slowly out through the door, followed by the detective in person. Ambrose was going fishing!

"Although I've never fished before," he told the robin, "I shall probably be able to catch a bite or two. At least, it will be a fine vacation."

He found a cardboard and wrote on it, "Gone fishing. Yell through your hands if you want me," and attached it to the door. With the pole over his shoulder he went across the field to the curve in the river. He knew where a giant oak threw a blanket of shade over a deep pool; in fact he had often gone there to think and sleep in the old days. There could be no more ideal place for fishing, he thought.

As he approached the pool he heard a sudden splash and a startled, "Duck! There's some one coming!"

There was more splashing, then silence. Ambrose walked quietly to the bank. There under the roots of the oak were several little bundles of clothing. He searched the surface of the water with his eyes, but nothing was to be seen except ripples and little, scurrying water beetles. Grinning, Ambrose sat down on the bank and leaned comfortably against the tree. A bird chirped somewhere, a bee droned past with a load of honey, but the water remained quiet. Mr. O'Pshaw plucked a blade of grass and chewed thoughtfully.

At last a quavering voice came from beneath the overhanging bank close to his feet. "W-Whoever you are, w-won't you p-please go a-way?" the voice pleaded. "We're f-freezing!"

"With pleasure!" Ambrose said politely.

Then several sleek and shining heads came up over the edge of the bank.

"Oh, it's the detective!" said a pleased voice, and Ambrose was surprised to see Henry Merrywell, now as wide awake and lively as a cricket.

"To be sure!" Ambrose agreed, rising. "I shall go and leave you boys to your swimming."

"Oh, don't go!" the boys protested. "It's all right, now that we know who you are!"

Ambrose recognized Jimmy and Misty Suds, sons of Sallie Suds, the washer-woman. There was also Carrots Green, whose real name, Robert, did not suit him nearly so well as his nickname, for nothing described the color of his hair so well as "Carrots." Shaking off the water, the four boys climbed on the bank.

A great floundering came from the water, and a coal black face peeped over the bank.

"Golly, I'se cold!" the little black boy chattered. "De ol' watah shuah am a-thinkin' it's Chris'mus!"

"Come on out, Posey," Henry said, giving him a hand. "It isn't a good thing to stay in swimming when you are so cold."

When the five boys were dressed, they sat on the bank with Ambrose, helping him to get his line ready for fishing. When hook and line were ready, they looked about for his can of bait and enjoyed a laugh at his expense when they learned he had forgotten that fishing required bait. The little Negro rolled on the grass and giggled until tears rolled down his face.

"Oh, golly, golly!" he gasped. "He thinks dem old fish air a-goin' to bite on nuthin' a-tall but crooked stickin' pins!"

At last a quavering voice came from beneath the overhanging bank close to his feet; "W-Whoever you are, w-won't you p-please go away?" the voice pleaded. "We're f-freezing!"

"Posey certainly likes to laugh!" Jimmy Suds observed.

"Why do you call him Posey?" the detective asked.

"His name is George Washington Blossom, so we thought Posey would suit very well."

"I don't see why we call him Posey," Misty Suds said in a flat voice. "It doesn't sound a bit like George."

"We've explained it again and again to Misty, but he never can understand," Jimmy said. "Things never are clear to him. That's the reason we call him Misty!"

"I understand things just as well as anybody!" Misty objected.

Looking at the boy, Ambrose wondered if this could be so. Misty sat hunched on a log, with his hands hanging between his knees. He was breathing heavily through his mouth, and his eyes looked dull and tired. Ambrose wondered what could make a boy look so dull and stupid. Perhaps here was another mystery to be solved!

"Which of you Suds brothers is the older?" Mr. O'Pshaw asked, to change the subject to a happier one.

"We are twins," Jimmy answered.

"But I'm different from him, even if he is the biggest!" Misty boasted. "I've got addy-noids!"

"What?"

"Addy-noids! Here!" Misty touched his nose. "I don't always remember to close my mouth when I go to sleep, and I've got addy-noids!"

Ambrose had heard of adenoids, and had wondered what they were, but he had never heard an owner boast of them before. Was this another mystery?

Little black Posey had been running about through the undergrowth. Now he snatched up a red feather, evidently from the wing of a cardinal, and stuck it jauntily in his kinky wool. Seizing a long pole, he ran about in a circle, uttering bloodthirsty cries.

"Ooo-whah! Ooo-whah!" he shrieked. "Me heap much big Indian chief! Eat up little palefaces! Ooo-whah! Ooo-whah!"

Shouting, the boys dashed after him, with Misty in the rear trying desperately to keep up. They chased Posey through the brush, where he hid and jumped out at them as they came by yelling like savages. Ambrose forgot that he was a boy no longer and joined in the exciting game. Finally Posey was overcome by an attack of giggles and was forced to surrender to the palefaces, who carried him bodily back to the oak tree and dumped him on the ground. He rolled over and over, squealing with laughter, while they sat on the ground and chuckled at him.

"I've forgotten how much fun a good game could be!" Ambrose said, wiping his streaming face.

"Wait until we get our breath and we'll show you a real game!" Carrots promised.

"Let's play 'kidnapers'!" Henry suggested, and the boys shouted in eager agreement.

"I get to be it!" Posey shouted hastily.

"Yes, Posey is it, because he spoke first," Henry decided. "Now, we must have a kidnaper."

"I'm the kidnaper!" Misty said quickly.

"Yes, let Misty hide the victim," Carrots said. "He would be better at hiding than searching, anyway."

Jimmy explained to Ambrose that the kidnaper would hide the victim, then would be captured by the gang and tied to a tree while they searched for his victim. In case the gang was unable to find the stolen one, the kidnaper would win his freedom, bring in the victim and hide him again in a new place. Ambrose agreed that the game sounded quite jolly.

Posey struggled in the grasp of the fierce looking bandit, who breathed heavily through his mouth from the exertion, but consented to being led away into the woods. The searching

party obligingly sat behind a bush with their eyes hidden, awaiting the signal that would announce that the poor victim had been tucked securely away out of sight and that they might begin their attempts to rescue him.

Misty kept a tight hold on the wrist of Posey, who continued to object and beg for mercy, and led him silently from tree to tree, keeping a sharp lookout for possible hiding places.

"Where-at you'all goin' to put me?" Posey asked between giggles and pleas for mercy.

"I don't know." Misty rubbed his head. "I don't see any good places."

"You-all never sees anything!" Posey said impatiently. "Ah reckon Ah gotta think of some place where-at Ah can hide."

"Yes, you think of a place," Misty urged.

Posey rubbed a hand over his curls and rolled his eyes in deep thought. Then a delighted chuckle broke from his lips.

"Ah tells you," he said gleefully. "You sits heah wile Ah fixes some signs which you-all kin drop along the groun' on de way back to de river. An den you-all hides your eyes wile Ah runs off an' hides by mysel'!"

"But if the gang can't find you, how could I tell them where you are? S'pose—"

"Aw, you-all don't unnerstand! You-all jess scatters dem little bits o' paper, an' when de gang finds dem all, dey kin read de message Ah's gonna write on dem. De words will tell where-at Ah'll be hidin'!"

"That does sound like fun," Misty said.

"Course it will be fun!" The little darky's bright eyes were dancing with excitement. He drew a few scraps of paper from his pocket and tore them into several small pieces. Then he plucked some berries from nearby briers and crushed them on a stone. Dipping a forefinger into the juice, he put a scrawling mark on each scrap of paper.

"Now, Ah've made a message, all in code-writin', an' writ in blood," he said proudly. "Don't you-all look at 'em, cose Ah don't want nobudy to know where-at Ah is!"

"I won't look," Misty promised obediently.

After repeated instructions in regard to their disposal, Posey tucked the bits of paper into Misty's pocket, cautioned him not to look and darted away. Thinking that he was really quite tired, Misty sat still for several minutes, as he had been instructed. He wondered why he always became tired before the other boys were even out of breath.

A snail crawled along at his feet, carrying its house on its back. Misty leaned far over, watching the little creature's attempts to cross the twigs that blocked its path. He picked it up and put it on a log, and became so interested in its movements that he quite forgot the game in progress.

When the impatient shouts of the searching party finally aroused him, the code signals were still in his pocket and entirely forgotten. The gang seized him roughly, annoyed at the delay he had caused in the sport, dragged him back to the oak tree and bound him securely.

"Now, you may sit and think about snails," they told him. "We're going to find Posey."

As they ran off Misty settled himself as comfortably as his bonds would allow and drowsed peacefully. The voices of the gang came from far away, and Misty's dull mind dwelt happily on nothing at all.

After a long time the searching party came back, looking rather crest-fallen.

"We couldn't find him," Henry said. "Give us a little hint, won't you, Misty?"

"He went that way," Misty replied, making a vague motion toward the middle of the woods. "He hid himself and wants you to find him."

"I s'pose he is off there laughing at us," Jimmy said. "Come on, fellows; we'll find him!"

Left to himself, Misty resumed his lazy nap. He was sound asleep when Ambrose touched him on the arm late in the afternoon.

"We were unable to find Posey," the detective said. "You'll have to tell us where he went."

"I don't know," Misty answered. "He ran and hid himself."

"Haven't you the least idea where he has gone?"

"No."

"Well, we scoured the whole woodland, but found not a sign of him. Do you think he might have left the woods?" *(Continued on page 1148)*

Misty settled himself as comfortably as his bonds would allow and drowsed peacefully.

SCHOOL AND HEALTH

A Department Conducted by J. MACE ANDRESS, Ph.D.

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Why Measure Health Teaching?

ONE OF the most significant movements in modern education is that of educational testing and measurement. It has probably done more to make education scientific than any other educational movement of our day.

In the past, the point of view in education was much like that of the traditional farmer. When asked whether his cows paid, he replied, "Oh, yes, I think so." But when asked how much, he had not the least idea. In fact, he was not quite certain whether or not they did pay because he kept no account of the feed given his cows, the time spent in their care or the exact amount of money received for his dairy products. He knew little about the productiveness of his individual cows, and probably some of his cows paid, while others were running him into debt. The good farmer today understands his profit and loss and moves toward better things. He has adopted a system of measurement.

The same is true of teachers. The old-time teacher had little tangible knowledge concerning her success or failure. She had faith that she was succeeding. Today the up-to-date teacher knows what her problems are and at the end of the year can definitely ascertain her successes and failures.

In health education, the success of the individual teacher, school or system of schools depends to a considerable extent on the ability to measure. What are the health knowledges, habits and skills to be measured and how can they be measured most effectively? These are some of the problems discussed in this department this month.

The School and Health Department for 1935

DURING the last year some of the most distinguished leaders in health education have been invited to contribute special articles to the School and Health Department of HYGEIA. These articles covered a variety of topics dealing with the solving of problems in health education. Judging from the many letters of commendation which have been received by the editor these contributions have been much appreciated.

Beginning with the January 1935 number of HYGEIA there will be a slight change in policy. The special articles will discuss more definitely the actual problems of the classroom teacher as they have actually been met in the schoolroom. A series of editorials will deal with the work of the classroom teacher. Both in the editorials and the special articles effort will be made to make readers familiar with a sound educational philosophy and examples of the best health teaching.

As in the past, the latest books and other printed matter bearing on health education will be reviewed in the section, New Health Books. Each review will tell something about the content of the publication reviewed and how it may be best used by the teacher.

What Health Subjects to Teach in December

TO TEACH children what they need at the time when they most need it is one of the marks of a good teacher. December has its own particular problems which should challenge the attention of the teacher.

The one great event in December that quite overshadows everything else is Christmas. During December both children and adults are subject to unusual nervous strain and fatigue. Parents are shopping. Children are under more pressure because of the many Christmas activities at school.

The whole month of December, especially Christmas day and the days of the vacation, is a time when health habits take a holiday. There is less sleep and rest and much overeating of candy and rich food. As it is a time when families get together and when travel and motion pictures and other entertainments mean crowds, communicable disease is most liable to be transferred.

Under such conditions it is not at all strange that there is a good deal of sickness following Christmas and that school attendance drops off.

The best teachers and the best schools are putting forth effort to make Christmas a healthier and happier time. Many teachers find ways to lessen the strain by discussing with the children the eating of candy, the desirability of getting the usual amount of sleep and of avoiding overeating.

If there is any one month of the year that requires the wise guidance of children in health matters it is December.

SOLVING HEALTH EDUCATIONAL PROBLEMS

How Can We Judge the Results of Health Teaching?

DETERMINING THE EFFICACY OF THE HEALTH EDUCATION PROGRAM

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EVERY teacher is interested in making the greatest possible contribution to the mental and physical health of her pupils through the classroom program of health training and instruction and through teacher and pupil cooperation with the various health services of the school department. What are the teacher's personal and professional qualifications and what are the teacher activities which determine the effectiveness of health education in each classroom? What are the best measurements of accomplishment to indicate the degree of success achieved? School administrators and directors of health education are concerned with these questions because it is part of their task to see where health education is most effective and why. It is their privilege to suggest ways and means of improving the health program in every classroom. The individual teacher, by a consideration of those items which determine the effectiveness of health education, is able to improve her own professional ability.

In the development of the health education program in the city of Malden, we have sought methods of measuring the health improvement secured and of analyzing those factors which seem to contribute to the success of the teacher. The

following statement of those items by which the success of a classroom program may be estimated represents a pooling of the experience and judgment of several persons who have had research or administrative responsibilities in the development of the Malden program.

We have not attempted to assign relative values but have made a score card on which the teacher can give herself an actual grade.

SUGGESTED TOPICS FOR CONSIDERATION IN DETERMINING THE EFFICACY OF HEALTH EDUCATION IN A CLASSROOM

I. *Personal Qualifications of the Teacher.*
1. Health as shown in appearance, energy and regularity of attendance.
2. Mental outlook as shown by poise and cheerfulness.
3. Neatness of appearance.
4. Posture.
5. Appropriate dress and shoes; extra clothing for bad weather.
6. Attitude toward health teaching; interest in improving the habits and health, as well as the knowledge, of individual children.
7. Amount and accuracy of health knowledge.

II. *Health Teaching.*
1. Use of natural interests and incentives of children.
2. Skill in teaching the subject of health.
3. Scientific accuracy in presenting health facts.
4. Skill in interesting children to follow health habits.
5. Skill in developing desired attitudes in pupils.
6. Amount and kind of illustrative material and source material made available for pupils.
7. New projects developed by teacher during current school year or fresh and improved presentation of old projects.
8. Use of life situations as they occur to develop attitudes, habits and knowledge related to health.

III. *Related Activities.*
1. Regularity and accuracy in weighing and measuring.
2. Care in keeping records; completeness and accuracy.
3. Cooperation with nursing, dental and medical service.
4. Cooperation with physical education service.
5. Integration of health with other subjects.
6. Follow-up of individual children.
7. Ability to secure cooperation of home in regard to individual children.
8. Conduct of daily inspections for cleanliness.

IV. *Hygienic Control of School Environment.*
1. Ventilation of room.
2. Proper seating for pupils.
3. Attention to lighting.
4. Removal of outdoor clothing.
5. Attention to proper use of drinking fountains and toilets.
6. Attention to hand washing.
7. Sanitary methods of serving milk, if mid-morning lunch is served.
8. Arrangement of program to avoid undue fatigue.

V. *Measurement of Results.*
1. Weight gains of children.
2. Correction of physical defects.
3. Improved habits as measured by inspection.
4. Improved habits as measured by health habit questionnaires or other devices.
5. Improved posture.
6. Increase of health knowledge as measured by health knowledge tests.
7. Attitude and general appearance of class.
8. The health improvement of individual children.

HOW CAN THE RESULTS OF HEALTH TEACHING BE JUDGED?

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"In any case, the results of health education must be measured in terms of educational outcomes, as well as immediate health outcomes." *Wood and Rowell, "Health Supervision and Medical Inspection of Schools."*

THERE are both measurable values in health teaching and values that are not measurable. Under the former may be classified knowledges and, within certain limitations, habits and attitudes. Under the latter may be classified some of the intangible outcomes of the program such as joyous living in work and play, vigorous health rather than mere freedom from disease, the education of parents through the education of their children, and an application of knowledge in later life. The attainment of the latter outcomes, even though it is difficult to apply the measuring stick to them, may be of the greater value, but boards of education and the lay public are more interested in definite results.

Increasing emphasis has been placed lately on "educational outcomes"; that is, the criteria that are evident to show that boys and girls are being instructed in how to think in terms of health rather than in what to think. Increased immunization against diphtheria even in the light of a drastic curtailment in the free school immunization program would lead one to an optimistic view of the pupils' and parents' attitude toward the necessity for such protection. Voluntary correction of physical defects including orthopedic defects, after these have been called to the pupils' and parents' attention, is a definite index of effective health teaching. Likewise motor ability may be measured, and if care is taken to differentiate between increased organic power and accomplishments in skills, there is provided a measure for the effectiveness of health teaching through the physical education program.

Routine health knowledge tests, subjective measures of children's interest in improving their personal appearance, weight increase, care of school grounds, and similar activities are all criteria on which effective health teaching may be judged. A rather accurate estimate of the school's success in interesting the child in health to the extent that this knowledge carries

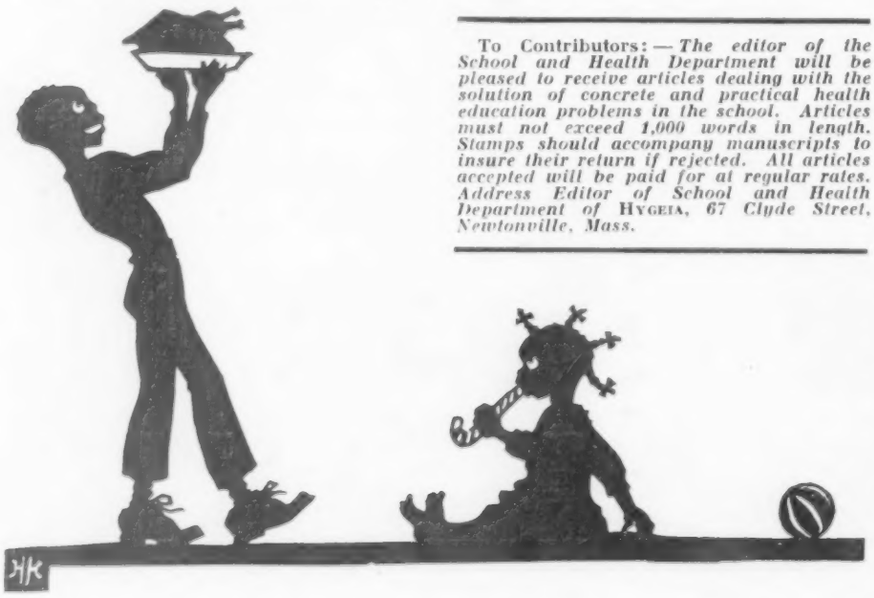
over into the home may be gathered from parental responses. A letter to parents at the opening of school advising them of the health program and a request that they inform the school at the end of the school year as to the health improvement of their children often yields excellent results.

More definite measurements need to be made of the mental and social health improvement of pupils. With the alarming increase in hospitalization of nervous and mental disorders and with a changing society impressing on us the need of power to adjust, what can we do to meet these situations? Measurement will doubtless be subjective for the present, but there must soon come a careful analysis of the physical education program in our schools as to just how much contribution is being made to the mental and social health of pupils. Is the program of sports, games, rhythms and dancing giving the full opportunity for emotional release and social adjustment that we claim for it? If it is, why are nervous and mental disorders on the increase? We have possibly been too intent on measuring physical health to the neglect of the emotional and social well being, considering the latter as indisputable by-products of a comprehensive physical activity program. It would be well to dispense with the term by-products in measuring the success of our teaching and consider the fact that unless we can measure the child in our complete contribution to his health status we have failed in our health programs.

Because child interest was recognized as one of the criteria on which to select the content of a health and physical education program, 10,000 elementary school children in Detroit were recently asked to express their likes and dislikes on the activities in which they were participating in the gymnasium. Some of the results were illuminating and would lead one to believe that certain activities to which they are not responding spontaneously are being superimposed on children at certain age levels. This may or may not mean injury to emotional health. It does indicate one way, however, in which we may eventually determine the success or failure of this particular phase of health teaching.

Boys and girls live in a small social world in their games and sports. There are misfits here as in life. A teacher who does not make every attempt to adjust these children to their social group must be considered unsuccessful in teaching social health.

Finally, measurement of the success of the whole program of health should be considered in the light of the child's biologic inheritance. Biologic changes have been slight; cultural changes have been great. Are we keeping pace in our program with the new and constantly changing demands that are being made on a body biologically constituted for an entirely different mode of life? Domestication is making us increasingly susceptible to disease and accidents. In measuring the results of our health teaching we must do so in the light of a rapidly changing society affecting every phase of health. Is our teaching effective when we recognize that routine work has now become a necessity in a mechanical age, when air conditioning is making life "soft," when concentrated or predigested foods constitute a large part of our diet, when fast transportation is causing an easy spread of bacteria and protozoa, when eyes are being used constantly at short range, when mating is being postponed far beyond the biologic urge for mating, when there is a conservation of those born weak and when there is a constant increase in brain work?



To Contributors: — The editor of the School and Health Department will be pleased to receive articles dealing with the solution of concrete and practical health education problems in the school. Articles must not exceed 1,000 words in length. Stamps should accompany manuscripts to insure their return if rejected. All articles accepted will be paid for at regular rates. Address Editor of School and Health Department of HYGEIA, *67 Clyde Street, Newtonville, Mass.*

MEASURING ACHIEVEMENTS IN HEALTH EDUCATION

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AT THE close of a period of health teaching, it is well to check up to see if the instruction has been effective. One may feel confident from general observations that all the children have a wide knowledge of health principles and are practicing good health habits, but how can this be proved to be a fact?

To find out how much children know and whether or not they are favorably inclined toward health habits is a comparatively simple task. Tests, which will indicate the extent of a child's knowledge of health and, to a limited extent, his attitude toward healthful habits, have been constructed and are available for the use of teachers.

There are two distinct types of these knowledge tests, each of which is used for a different purpose. One type of test is designed to measure knowledge about specific subjects, such as teeth, nutrition and cleanliness. Such tests are useful, particularly at the close of instruction on a subject, in order to clear up any confusion or correct any wrong impressions that may have been made during the period of teaching. The teacher can then proceed with new material with confidence that the previous subject has been grasped.

A second type of knowledge test is useful in judging the success of the year's work. Such tests include a sampling of questions on all the various subjects of health instruction. They give a measure of the relative amount of health information that the children have acquired. Thus, they point out the specific children who have not profited by the instruction and who should later be given more intensive attention.

These tests may also be used for a comparison of the health knowledge and attitudes between groups; for example, one sixth grade class with another, one school with another, or one community with another. Of course, in making such comparisons, one should not overlook the fact that the intelligence of the children and their home background will influence their score on the tests. The more intelligent children from the better homes will make better scores than children from less privileged homes. Failure to take such influences into account will result in wrong judgments on the effectiveness of the teaching.

However, knowledge about health and a favorable attitude toward health practices are not the most

important and vital outcomes of health teaching. We are interested in influencing the child's habits of living. We not only want to find out that the child knows that he should drink plenty of milk and no coffee or tea, but we are also anxious to know whether our health teaching has been effective in establishing in the child the habit of drinking milk regularly.

Tests that measure the habits of children have not been developed to such an extent as tests of their knowledge. This has not been because of a lack of interest, but because of the great difficulty in arriving at an accurate measurement of behavior. Information as to a child's habits, as reported by himself, is unreliable. Not only is his judgment immature, but there is a strong incentive to gain praise or reward by taking too rosy a view of his own achievements. At times, there is a sense of shame in admitting the poverty of the home which makes an individual tooth-brush and a daily bath too high an ideal. The more thorough the health knowledge, the more difficult it is to get a correct report from the child who does not do the things he knows he should. Therefore, attempts to evaluate health through the reports of children not only will fail, but will also encourage children in making false statements.

Another method sometimes used by teachers in checking on a child's health habits lies in observation of his behavior at school. Unless done under carefully controlled conditions, this creates an artificial situation in which the behavior is liable to be widely different from that which is habitual to the child.

For instance, when a child selects his own lunch in the school cafeteria and his tray is afterward checked by a supervisor before he carries it to a table, he is not likely to choose the things he would ordinarily eat, but rather those things which he thinks will win the approval of the lunchroom supervisor.

Difficult as it is to obtain evidence of behavior, there are certain health practices which yield themselves readily to evaluation in terms of positive achievement. For example, repeated emphasis on the importance of periodic dental examinations may actually result in the child's seeing the dentist twice a year. Records kept over a number of years by the school nurse and the teacher may show that significant results have been achieved in establishing this habit. Similar records may be kept of children who have been designated by the school medical examination as needing medical attention. The percentage of the entire number who do actually see a doctor, either in his office or at a clinic, is important. Comparison of the figures year by year should show that steadily increasing numbers are giving attention to securing correction of physical defects. If there is no improvement or if the number decreases, the teacher has not been successful in her health teaching. Perhaps she did not give these items enough importance, or perhaps there was a lack of cooperation with the school nurse or some other failure in organization.

Complete objective evaluation of all the results of health teaching is not possible with the present limited tools of measurement, and this is particularly true in finding out what the health habits of children are. The construction of tests of behavior of all kinds is one of the difficult problems which specialists in educational measurement need to solve.

A BIBLIOGRAPHY
for solving health education problems

Franzen, Raymond Hugh: Health Education Tests. No. 1 of the School Health Research Monographs. Price, 60 cents. Pp. 70. New York: American Child Health Association, 1929.

Describes the relation of tests to the aims and objectives of health instruction.

Gates, Arthur, and Strang, Ruth: The Gates-Strang Health Knowledge Test. Price, $1. Pp. 85. New York: Bureau of Publications, Teachers College, Columbia University, 1925.

A true-false test for secondary school pupils.

Health Education Test Forms. Price for sample set without scoring keys, 25 cents. New York: American Child Health Association.

Each test may be secured in lots of fifty with scoring key. Although these tests were written for fifth and sixth grade children, they can be used successfully with higher grades.

Measurement in Health Education. Chapter V, Section E, in Health Education—A Program for Public Schools and Teacher Training Institutions. Report of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association. Second edition. Price, $1.25. Pp. 251. Washington, D. C.: National Education Association, 1930.

An excellent review of the field with practical suggestions and references on tests and measurements.

Pryor, H. C.: Pryor Health Knowledge Tests. Forms A and B for Junior-Senior High School. Price for sample set, 15 cents; for package of twenty-five tests with accessories (postage additional), 50 cents. Pittsburg, Kan.: Bureau of Educational Research, Kansas State Teachers College, 1930.

A test for health information consisting of two parts, a true-false test and a multiple choice test.

Turner, C. E., and Turner, N. C.: Objective Tests for Cleanliness and Health. Price, single copies postpaid, 25 cents. Cambridge, Mass.: C. E. Turner, 69 Massachusetts Ave.

Health knowledge tests for upper elementary grades prepared to help teachers to diagnose individual and class difficulties.

NEW HEALTH BOOKS
for teachers and pupils

THE INCREASING number of master's and doctor's theses in the field of health education is evidence of the growing interest in this problem. Among those which have appeared none is more practical or scholarly than "A Study of Health Standards"[1] by Anette M. Phelan, Ph.D. This study concerns itself with the working standards for a school health program. The plan was to isolate a group of standards and then to scrutinize them in the light of their value in a comprehensive school health program. The study seems to cover practically all the available material on the subject.

The reader will find the table in the appendix of great interest and value. This table gives a list of 242 items relating to school standards and the median ratings given these items first by a selected group of fifty-two specialists in school health and school administration in 1931 and, second, by a group of professional students representing

1. By Phelan, Anette M. Pp. 249. New York, 1934.

four different but related fields in Teachers College, Columbia University, in 1930.

A review of these standards offers the reader an opportunity to consider the health standards of today as formulated and approved by experts.

WITHIN the last ten years Kathleen Wilkinson Wooten (Mrs. H. Stewart Wooten) has been actively engaged in writing books on health education for teachers. Each has shown a marked improvement over the previous one. Each has been the direct result of her classroom work at the Georgia State College for Women.

The present volume, "Health Workbook for College Freshmen," [2] is also the direct outgrowth of classroom instruction. It is intended to be an orientation course in personal, home and community hygiene for college freshmen. It is comprehensive in scope; it outlines some forty-seven problems. There is an excellent bibliography attached. After each chapter there is a blank page for notes. This workbook is a worthwhile contribution to the rapidly growing health education literature for college students.

IT IS refreshing to find something new in courses of study on health. No finer example of curriculum building can be found in organizing a course of study in health than "Health in the Curriculum," [3] worked out by the teachers in the schools of Kansas City, Mo.

Health is recognized as first among the goals of education. It is not regarded merely as physical well being but includes also mental, emotional and social aspects. The goal of health education is daily conduct on the part of the individual in accordance with the present knowledge of healthful living.

Those who prepared this bulletin did not make the error, so commonly found in courses of study, of making definite assignments for weeks and months. They recognized that health essentials are few in number and practically the same for each grade group. The bulletin contains a wealth of material referring to the various school situations in which health may be taught profitably. The suggestions are so numerous and so varied that the teacher is left free to choose and adapt the material to the needs of her particular group and situation. One part of this bulletin is devoted to descriptions of classroom activities which illustrate the theme of the bulletin—"Health in the Curriculum."

The bibliographies for each grade are excellent, for the references are not only to books which deal specifically with health but also include books on social studies, nature and elementary science, clothing, shelter, visual aids, work and play, weather and climate, safety and protection, humor and fun and a series of school readers.

THE STATE of Iowa requires that every school child shall receive regular instruction in physical education and health education with as definite a standard and program as those required in other school subjects. The bulletin on the "Iowa Plan for Physical Education in Rural and Elementary Schools" [4] lists a number of physical activities from which the teacher may help the children make a selection.

The criteria used in the selection of activities for a group should be of interest to every teacher who has anything to do with physical activities. A brief summary of these criteria follows:

1. Is the activity suited to the interests, ability, physical needs and health of the children?
2. Is the activity used at other play times and does it lead to more advanced similar activities?
3. Does the activity use, and thereby educate, the child as a whole, intellectually, emotionally and physically?
4. Does the activity allow the children to share in determining and reaching their own goals or purposes?
5. Are the activities sufficiently varied so that many postures of readiness may be acquired by the child?
6. Do the activities help the child to do better many desirable things he will do anyway, so that they will have real meaning and offer great satisfaction?

THE OLD IDEA that the study of science should begin in the upper grades or in high school is rapidly giving way to the thought that facts relating to science and scientific attitudes may be taught in the primary grades. "Science Stories, Book I," [5] is an attractive book for the first grade as it is intriguing in its content and illustrations. There is little in it about health, but the ingenious teacher will find it easy to bring in valuable health lessons. First grade teachers will want this book for the reading table and for supplementary use.

IT WAS a great day for the child and for education when the help of the physician was sought by the school. Experience has shown how valuable the school physician is in helping to solve educational problems. As time went on, other skilled and technical workers were welcomed by the school. Among these were the school nurse, the school dentist, the nutritionist and the physical educator.

The last of the health experts to find his way into the school is the psychiatrist. It has been his business to treat patients suffering from mental disease and conduct disorders. The fact that such mental disabilities are found among school children is one of the reasons why he is being called into the schools at the present time, but there is another and even better reason.

It is well known today that all sorts of mental disorders in adult life from mild neurotic conditions to functional insanities originate in childhood. They start, in part, from the inability of children to solve major problems. They adopt various ways of escaping from reality. Some of these methods of escape, if not properly recognized and dealt with by the school, lead to disaster in school and later life.

Dr. Mandel Sherman, psychiatrist and teacher from the University of Chicago, makes available for teachers in his new book, "Mental Hygiene and Education," [6] much knowledge and many suggestions for the training of children. The various mechanisms for avoiding reality are pointed out, and helpful suggestions are offered in the training of school children.

MAN IS now a house-living animal but it was only yesterday biologically speaking that he came indoors. As an indoor animal, his progress and welfare have been greatly influenced by eyesight, especially since the invention of printing.

Matthew Luckiesh, D.Sc., a profound student of the problems connected with vision, has written an excellent book, "Seeing and Human Welfare," [7] which will be an eye-opener to many. The author says that this is a half-seeing world and, unfortunately, we have not yet learned how to make use of our resources so as to promote optimum vision.

This book is largely the result of the working out of a more technical volume and would be an excellent reference book for college students and teachers who wish to understand the problems relating to better vision.

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2. By Wooten, Kathleen Wilkinson. Pp. 214. New York: A. S. Barnes & Co.
3. For elementary schools, grades I-IV. Curriculum Bulletin Number 11. Pp. 160. Kansas City, Mo.: Kansas City Public Schools.
4. Mimeographed. Pp. 16. Des Moines, Iowa: Department of Public Instruction.
5. By Beaucamp, Wilbur L.; Cramptor, Gertrude, and Gray, William S. Price, 60 cents. Pp. 145. New York: Scott Foresman & Co., 1933.
6. By Sherman, Mandel. Price, $2.25. Pp. 295. New York: Longmans, Green & Co., 1934.
7. By Luckiesh, Matthew. Price, $2.50. Pp. 193. Baltimore: Williams & Wilkins Company, 1934.

New Books on Health

BIG PROBLEMS ON LITTLE SHOULDERS

By Carl Renz, M.D., and Mildred Paul Renz. Cloth. Price, $1.50. Pp. 129. New York: The Macmillan Company, 1934.

THIS VOLUME attempts to make simple for parents the psychologic aspects of child training, particularly the adjustments of the child to his environment and his associates. It is sound in its point of view but a little too conceited in its style of presentation. The authors apparently talk down too much for most intelligent readers. The case method is used in presentation, but this does not serve to sustain the discussion at the level which it should have. Somehow most of the works on child training have this tone of unconscious superiority. What is needed is much more cooperation between parents and teachers, perhaps with the child himself as the third party in the cooperation.

MORRIS FISHBEIN, M.D.

HYGIENE AND HOME NURSING

A PRACTICAL TEXT FOR GIRLS AND WOMEN. By Louisa C. Lippitt. Cloth. Price, $1.24. Pp. 424, with illustrations. Yonkers-on-Hudson, N. Y.: World Book Company, 1934.

ALTHOUGH the currently popular phrase, "All right, I'll draw you a diagram," may hold the stigma of derision, nevertheless diagrams, both figurative and literal, do help to clarify for the uninitiated certain terms and technicalities. Especially is this true in interpreting scientific matters to the layman. By the use of verbal and pictorial diagrams and by a judicious employment of that invaluable little word "or" by which she links the technical term to a nontechnical explanation, Louisa Lippitt, R.N., has made an excellent interpretation of the body's needs in sickness and in health.

"From my early years as a daughter in a physician's home and from my life experience in nursing and in hospitals," she writes, "I have become familiar with the health and nursing problems that women most frequently encounter and I have had the privilege of observing the methods that skilled and scientific physicians advise in meeting these problems." She combines the knowledge gained through years of observation and experience in physical therapy and other forms of nursing with a rare ability to make simple, lucid statements and to give clear, easily executed directions. The result is a manual of practical instruction for daily life in terms comprehensible to every one. The author's purpose, "to explain how a girl may attain health and happiness in the present and lay the foundation for a sane and vigorous old age; to give directions for preventing the spread of infections from cases of communicable disease, and to furnish instruction in caring for oneself and one's family both under ordinary conditions and

in time of accident or sickness in the home," is conservatively stated and admirably realized.

Perhaps a less restrained treatment in the matter of book and chapter titles would attract many readers to whom the material would be a boon, yet who may not be intrigued by sedately formal terminology. For example, in the chapters on bathing and care of the skin and hair, care of the mouth and teeth, exercise and exercises, fatigue and how to prevent it, clothing, and foods and nutrition, there are hints for healthful beauty that would gain a prominent place in the best syndicated columns on beauty culture, for the beauty hints include hygienic reasons, scientific explanations and incontrovertible common sense.

Any one who has read the book should have a good understanding of the body, its structure, functions and care, and should have had revealed clearly the meanings of those mysterious terms which sometimes baffle the layman and discourage him from further attempts to learn about health matters.

Among the many excellent features of the book are its diagrams and photographs, tables for caloric intake, chapters on child feeding and adult feeding, and tables showing important facts in regard to some communicable diseases.

The book is a combined physiology, textbook for amateur nurses, first aid manual, and general guide for mothers. It may well find a place both in the home and in the school.

LEOLA J. HARRIS.

ALLERGY AND APPLIED IMMUNOLOGY

SECOND EDITION. By Warren T. Vaughan, M.D. Cloth. Price, $5. Pp. 420, with numerous charts and illustrations. St. Louis: C. V. Mosby Company, 1934.

THIS IS a second edition of a book which was prepared as a handbook for physician and patient. It defines allergy or sensitivity, lists the various types of allergic disease, indicates the relationship of heredity and geographic location to allergic reaction, and then discusses the means for overcoming sensitivity. Many parts of the book will be found somewhat advanced for the patient and much more definitely intended for the physician, but with a disease condition of this type, it is doubtful that the patient can really know too much, short of attempting to inoculate himself or treat himself with some of the potent drugs used in these conditions. The book is sensible, modern and dependable.

M. F.

[NOTE.—Books reviewed or mentioned on this page, other than those published by the American Medical Association, should be ordered from booksellers or direct from the publishers. They may not be ordered through HYGEIA or the American Medical Association.]

QUESTIONS AND ANSWERS

Medical Discoveries by Laymen

To the Editor:—This is to inform you that I have made a medical discovery that will do away with much suffering and misery for humanity. I refer to cataracts of the eyes. I am not a doctor or a medical student, but I made this discovery by accident. Please inform me what to do.

E. R., California.

Answer.—While it is true that an occasional medical discovery is made apparently by accident, attention should be called to the fact that Louis Pasteur, the famous French chemist who founded the science of bacteriology, remarked that chance favors only the prepared mind. In other words, it requires preparation and scientific training to be able to take advantage of accidental observations and to understand what they mean.

It is also true that in times past, medical discoveries have been made by nonmedical persons, and some of these furnish interesting stories which modern writers have used in books on medical history. However, conditions have changed. Scientific knowledge has advanced so rapidly in the last seventy-five years that it is now doubtful whether any important medical discovery will be made by accident by a person who is neither a physician nor a scientist.

While it is not likely that the inquirer has made any important discovery with respect to cataracts, he might lay his opinions before his family physician who will soon be able to inform him whether he has really made a discovery or whether he is deceiving himself.

Blood Circulation

To the Editor:—I have been troubled with blood rushing to my head when I sleep without a pillow or when I lower my head below my chest, but since I have paid more attention to my diet and have taken deep breathing exercises, this trouble has almost left me. What was the trouble? Did the diet or the deep breathing exercises help it? My blood pressure was a little below normal. I do not know what it is now. I had the trouble for three or four years, but in two months after I began the diet and the breathing exercises it was helped.

H. O. W., Georgia.

Answer.—It is a perfectly normal phenomenon to have blood rush to the head when the head is lower than the chest. The probabilities are that the change in diet had nothing whatever to do with any change that may have occurred in the frequency or extent of this phenomenon. It is just as well that one does not know what one's blood pressure is. Blood pressure is variable in any event, depending on a number of factors, such as fatigue, excitement, the use of tobacco or alcohol, anger, fear, the taking of food, sitting up, standing or lying down. There is no such thing as a fixed blood pressure and the less a normal individual thinks about his blood pressure the better off he is.

If one enjoys experimenting with diet and taking breathing exercises, it will probably do no harm, providing one does not get tangled up in any of the freak diets that are being advocated today by quacks and other enthusiasts who usually have something to sell. A simple, wholesome diet with liberal amounts of milk, eggs, leafy vegetables, and fruits, plus other good foods and not excluding meat, is all that a person needs. Breathing will take care of itself.

Ovarian Cysts

To the Editor:—When one has had a cyst on each ovary, is it almost certain that the remainder of the ovary will also become cystic? What causes general toxemia? Will general toxemia cause an ovarian cyst? What causes congestion, and does congestion bring on a cyst, or does inflammation bring it on? Are ovarian cysts caused by certain foods or by developmental defects that bring them on? What causes hair and teeth to form in ovarian cysts?

S. F., Massachusetts.

Answer.—Ovarian cysts are of several kinds. The most common type of cyst is a normal sequel to the formation of ova and their extrusion from the ovary during each monthly generative cycle. These cysts are of no consequence, although before they were understood, ovaries were removed on account of them.

Other types of ovarian cysts, including the dermoid cyst, are of genuine significance. They are probably caused by the misplacement of embryonic tissue during the complicated process of development of the embryo in the uterus. The embryo develops from three primary layers of cells. One of these layers gives rise to the skin and hair and to the nervous system. Another gives rise to the mucous membranes and the internal organs of a glandular character, such as the liver and pancreas. Between the outer layer from which the skin and nerve tissue are formed and the inner layer from which the glandular organs are formed, lies a middle layer from which are formed the bony and muscle tissues of the body, including the circulatory system. The process of development is best briefly described as a series of outgrowths and infoldings. In the course of infoldings there may be an inclusion of tissues from the outer layer within the body, and it is from such inclusions that dermoid cysts develop. This outer layer gives rise to structures connected with the skin, such as hair, and this accounts for the presence of such structures within dermoid cysts.

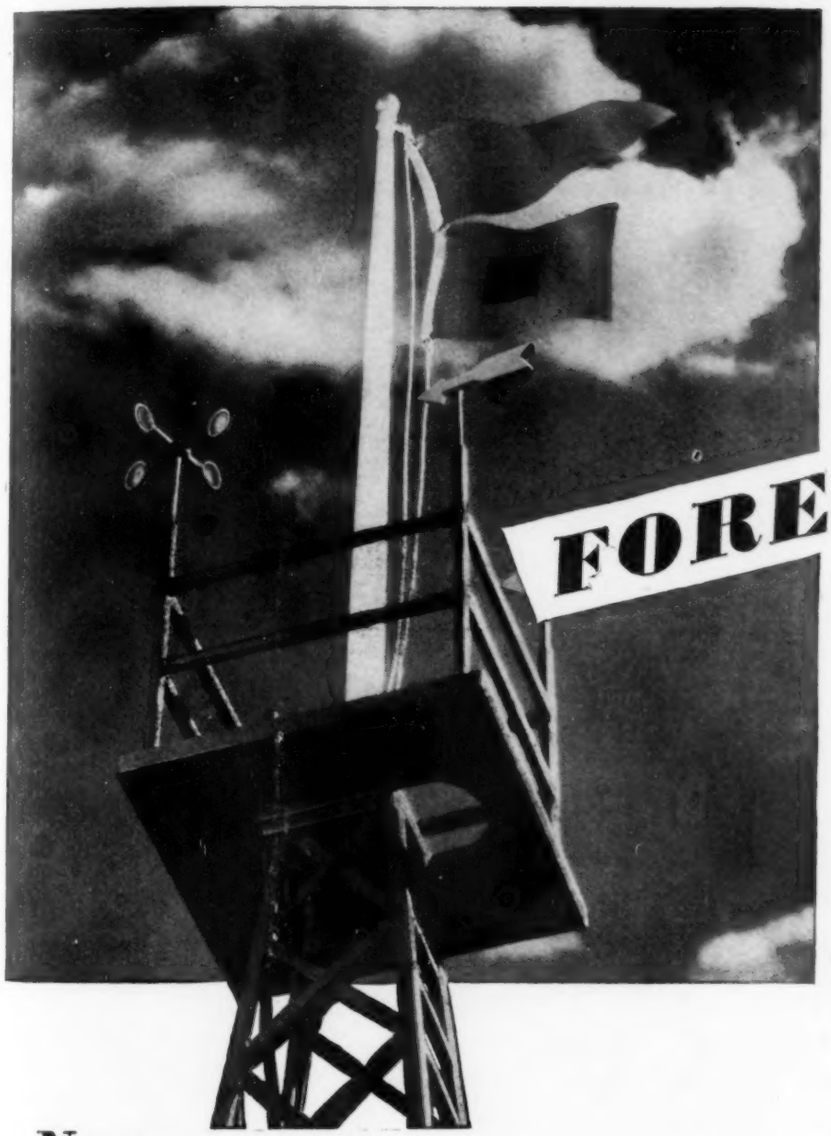
There are also other cysts of the ovaries which consist simply of sacs filled with fluid growing on a stem or pedicle. These may or may not be dermoid in character.

The fact that one has had a cyst on each ovary does not necessarily indicate that the remainder of the ovary may become cystic. Neither general toxemia nor congestion will of themselves cause ovarian cysts.

General toxemia may result from acute disease, such as diphtheria, septic sore throat, typhoid or other acute diseases, or from chronic conditions such as a low grade of inflammation in the appendix, gallbladder, chronic infection of the tonsils, or abscesses about the roots of the teeth. Congestion is merely a symptom. In plain words, it means an accumulation of blood locally which is a measure of defense in many instances.

Foods have nothing to do with ovarian cysts.

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a three-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed. Anonymous letters are ignored.



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X-rays should always be used in checking up on any suspicious respiratory condition. After serious colds or grippe—after measles in children, radiographs of the chest are important in determining or ruling out the presence of pneumonia.

Do not let storm warnings forecast illness. See your doctor at the first sign of something that is wrong. And remember that radiographs are one of his greatest aids in detecting disorders quickly and accurately.

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Do You Know—

1. Why a fleshy person should take a lump of sugar as dessert at the end of a meal? *See page 1114.*
2. How much the normal baby is expected to grow and develop at various stages? *See page 1094.*
3. Why many middle-aged persons are unhappily adjusted? *See page 1088.*
4. Why a left-handed child should not be trained to fit into a right-handed world? *See page 1110.*
5. Some of the reasons why the state system of sickness insurance does not work in the countries where it is being tried? *See page 1070.*
6. The best way to rid domestic animals of fleas? *See page 1091.*
7. How a mother may help her child in home exercises for cross eye? *See page 1118.*
8. What foods were served daily to American families a century ago? *See page 1086.*
9. How the physical examination differs from the medical examination? *See page 1095.*
10. The three causes of anemia? *See page 1096.*
11. Why the Wassermann reaction of the blood of a patient may differ in various laboratories? *See page 1106.*
12. How medical quacks obtain their testimonials? *See page 1077.*
13. Who was the first American to win the Nobel prize in medicine? *See page 1099.*
14. The causes of death of the various members of the House of Bourbon during their 250 year rule over France? *See page 1122.*

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SEEING CHRISTMAS

(Continued from page 1085)

he had gotten his topcoat on, another call came and another. Old Jim Hooker's rheumatism was plaguing him, and Mrs. Freeman was having one of her spells.

To Dick none of these calls sounded urgent. He said as much to Tom, who was looking a little worn.

"They're not very important, I suppose," Tom admitted, "but it seems easier just to go. Sometimes, you see, I find things worse than I'd expected. Don't know when I'll get back, so I'll show you where to roost if you're sleepy."

Dick finished his smoke. He was thinking of Tom. He could see through Tom. The reason for Tom's cheerful response to these trivial calls was that finicky conscience of his.

When it came to conscience, Dick's own was none too comfortable; it hadn't been all evening. It was disturbed about that little boy who wanted to see Christmas. Dick had promised him and had let him down without a substantial reason.

Well, it couldn't be helped now. Dick went to bed. He thought of Tom's boys. What a time they'd have with their Christmas tree! The older one was 10, just about the age of that boy who wanted to see Christmas. Gosh! Couldn't he stop thinking about that kid?

He struck a match and looked at his watch. It was 3 a. m. Tom's boys would be up by 7, perhaps earlier. He lit a cigaret.

A car stopped by the office door. Tom was back. Dick made a sudden decision. It was hardly fair to Tom, but the blessed old scout would understand. There was not another man in the world to whom he could explain it, but Tom would not think it foolish or womanish or odd.

Five minutes later Tom's voice boomed out, forgetful of his sleeping household.

"Sure! I know how you feel! We can get to the station in twenty minutes. There's a fast train at 4:15, and you can catch one back at 9 a. m. Shut your mouth, man, I'm not tired! I'd go with you, but I have to go on a call within an hour, a maternity case. Here! I've a big idea!"

He strode into the reception room and took a number of small toys and ornaments from the tree. He found one of the airplanes and selected the larger cowboy suit to add to the collection.

"I'm giving my kids too much," he declared. "I haven't felt right about it. If they get less, they'll appreciate it more. We'll give that little chap a Christmas worth seeing."

He found a sturdy brown sack to hold the gifts. A few of the toys seemed too fragile to take chances in the sack, so he fastened them several inches apart on a stout cord so that Dick could carry them across his shoulder. Soon they were speeding toward the station.

"So long, Santa!" cheered Tom as he left Dick at the train. "See you in time for the Christmas dinner!"

When Dick reached the hospital, he scaled the seven front steps in two leaps and nearly collided with the colored orderly who was loafing at the entrance.

"Chris'mus gif', Dr. Wharton! I done ketch ev'ybody's Chris'mus gif' yit! Dr. Wharton, you sho look like Santy Claus, an' you soun' like 'im too."

Dick returned the greeting and marched somewhat less blithely down the corridor. He was conscious of a fairy-like tinkling as he walked; it was the little set of wind chimes that Tom had put into the sack.

It occurred to him that he hardly looked the part of Dr. Richard Wharton, celebrated eye surgeon. He rather hoped that he could reach the eye wards without meeting any other members of the hospital force. He had removed the string of toys from his shoulder and was carrying them in as modest a cluster as possible. Before he turned the corner he decided to put all the toys together in the sack.

While he was doing this, a white uniform whisked around the corner. It was a somewhat crumpled uniform; it was a nurse who looked a bit jaded in her perky, white cap and whose blond-brown hair was drawn somewhat stringily over her ears. Some of the toys clattered to the floor. Her eyes widened.

"Oh!" she gasped, "Excuse me!" She picked up a tiny rooster which promptly crowed with surprising emphasis.

"That's his way of saying Merry Christmas," explained Dick with an embarrassed smile. He rescued the cap that had become detached from a small mechanical clown. It occurred to him that he probably looked comical, but she was not laughing. Her eyes were soft and misty, and her lips trembled.

"Miss Wayland," Dick gathered up the rest of the toys with sudden dignity. "I'd like to take off Sandy

SEEING CHRISTMAS

Bodkin's bandages, but I have these things to put on his tree first. Will you help me with them?"

Fanciful as it may seem, she did resemble that Christmas angel of Tom's! Painstakingly she untangled the string of toys and fastened them on the tree while Dick took the other gifts out of the sack. Her hands were trembling.

"I'll find a nurse," her voice sank to a whisper, "I'll find a nurse to help you with the dressing."

"Why can't you stay? It won't take ten minutes."

"I'm—I'm not—a real nurse. I haven't the understanding that a nurse should have. I told you—I said that you were hard and inhuman. A real nurse would have known that it was only your professional manner and that your heart was not hard."

"You mean—?"

She nodded, then dropped her head like a small child awaiting reproof.

Though the world seemed to be spinning crazily, Dick managed to extract from an inner pocket something that sparkled like a very special star.

"You're more than a nurse," he declared throatily as she snuggled it on her finger. "You're a Christmas angel!"

"I'm—I'm not," she murmured into his coat collar, "but I love you."

Sandy obligingly slept while they attended to a few little matters of their own, one of which was the writing of a telegram to Tom. Something in it made the angel laugh, a tinkling, Merry Christmas sort of laugh, so that Sandy stirred and wanted to know whether it was Christmas.

"Which reminds me," said Dr. Wharton in his best professional manner, "that I came to do a dressing!"

EDUCATION

Education does not mean teaching people what they do not know. It means teaching them to behave as they do not behave. It is not teaching the youth the shapes of letters and the tricks of numbers, and then leaving them to turn their arithmetic to roguery, and their literature to lust. It means, on the contrary, training them into the perfect exercise and kingly continence of their bodies and souls. It is a painful, continual and difficult work to be done by kindness, by watching, by warning, by precept, and by praise, but above all—by example.—*The Hoosier Res-Cuer.*

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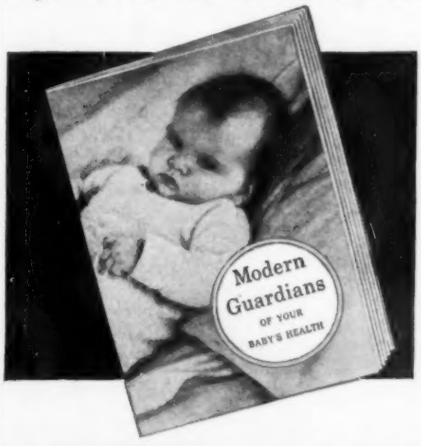

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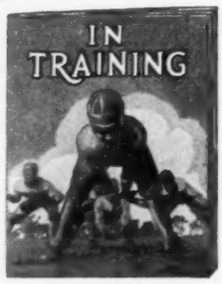

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AMERICAN MEDICAL ASSOCIATION

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PHYSICAL EXAMINATIONS

(Continued from page 1094)

look for trouble?" The answer is that one is better able to avoid something that is foreseen and for which one is prepared. It is better to replace a weak part in a car before it breaks than to wait for it to throw one in the ditch; it is better to be sure that there are no weak organs in the body than to wait for them to show they have broken down.

Such reasoning may do for the adult but will not do for the infant. For the adult, health is expressed largely in negative terms: We have no lack of appetite and no indigestion. We feel well and can say so. We probably are well.

Is the new-born infant to be considered well if he lies quietly as he is placed, sleeps the clock around and apparently sees, hears and is conscious of nothing? Probably, because these conditions are normal at that stage of life.

But what of the 2 month old child? Something different is expected from him. What is normal at the time of birth will no longer apply.

Much more is this true at 6 months of age, when more muscular ability and intelligence are expected of the child. Whether he is as well as he should be can be determined only by examination and comparison with recognized standards. Such examinations show whether or not the child has kept up to the red line. Here are a few of the things that the child must be able to do if he is to keep on this normal red line for the first half year.

The normal baby grows 1 inch a month for his first 6 months. He gains from 6 to 8 ounces a week during this time. His head increases in circumference ½ inch a month. This growth is continuous, even and symmetrical. He learns to use his neck muscles well enough to hold up his head at about 4 months. His back muscles are almost ready to support his body in a sitting posture by the end of this first half year.

From the tenth to the twelfth month he learns to stand, to use his hands, to grasp objects and to know the difference between friends and strangers. He grows at just half the rate at which he grew during his first 6 months. He gains from 3 to 5 ounces a week. He can be trained to control the bladder and bowel actions and to adjust himself to regular hours for activity, sleep and food. If his control is right and if he is capable physically and intellectually of keeping up with the normal red line, he can be made into a "comfortable baby," comfortable both for himself and for his parents.

Only by keeping watch over his physical and mental abilities can one know that a baby is big enough and strong enough for his age. Facts that should be obvious, but that frequently are not, come out as a result of checking up on the child's condition. Evidence may show that he is getting too much or too little food, that his elimination is not what it should be although it is apparently good, or that he needs more of those things particularly necessary to the city-bred child such as orange juice and cod liver oil.

Increase in weight is not all there is to good nutrition. Quality of tissue is of more importance than quantity. The scales do not register quality. Firm flesh means good resistance, and normal throats protect against colds, bronchitis and their attendant complications. The presence of enlarged glands gives warning of low vitality and sometimes unsuspected disease.

It must always be borne in mind that no single red line can serve the purpose as a standard for every individual. Individuals vary. Some children inherit tendencies to rapid growth just as some show an ability to learn more easily than others.

The point is that there must be steady and constant progress physically and mentally. The growing child does not stand still. He must advance or lose ground. Growth of the body and increase in ability to use it must go hand in hand.

Periodic examinations, then, do act as a safeguard against future trouble and as a guide in the daily management.

CORRECTION

In Marion Farren's article entitled "Food Fads and Food Faddists," which appeared in the October issue, the second sentence of the eighth paragraph should be amended to read: "Iodine compounds have been given to school children and to nursing and pregnant mothers under the direction of the public health department. Since the amount needed by the body is small, approximately .003 Gm. weekly, it is not advisable to use large amounts except under the supervision of a physician, as too much iodine is as bad as too little."

Personal hygiene is largely a matter of purposeful and intelligent cleanliness.—*Walter Frank Cobb.*

SPEECH PROBLEMS IN CHILDHOOD

(Continued from page 1113)

The handicap of cleft palate speech was once considered a "visitation of God" about which nothing could be done; it was a condition to be accepted with as much resignation as possible. There was no recourse. Its unfortunate possessor must go through life suffering the humiliation and misery that result from inability to fit into society through the medium of understandable speech. Without hope of relief, this affliction is nothing less than a tragedy and engenders a personality blight that is perhaps the most unhappy phase of the condition. The individual is filled with the sense of inability to meet the social situation, and his emotional stability is undermined by a conviction of insecurity and inadequacy.

Cleft palate is the failure of nature to complete her developmental work. The buds of the tissue that forms the roof of the mouth fail to unite before birth, leaving an opening in the hard or the soft palate or in both. However, science has found that this condition need no longer be supinely accepted; surgical attention, given when the baby is young, frequently effects a complete or at least a partial closure of the opening. Cleft palate surgery was improved during the late World War when plastic surgery was given its impetus, and today there are outstanding surgeons who specialize in this field.

In the past, little if any lasting benefit was provided for the child so afflicted other than the work done by the dentist who placed a plate over the palate opening. It is now an accepted opinion that within the first month after birth a child with a cleft palate should be taken to a specialist in oral or plastic surgery. Frequently, with proper surgical intervention, the child's mouth may be made capable of performing all its normal functions, and he will be saved from the personality hazards inherent in this serious abnormality.

Too often this developmental defect is not discovered until it is noticed that the baby has difficulty in nursing. If the mother is not sufficiently informed to become alarmed by this, the child's condition through malnutrition may become so serious that surgical intervention cannot yield hopeful results. Therefore it is imperative in his first examination of a baby that the doctor look carefully for a possible palatal deformity.

However, surgical correction is not all that is needed in cases of cleft palate; this condition requires also the expert supervision of one trained in speech formation. Too often it happens that a child so afflicted can be understood only by his mother, and it is at this point that the speech worker who thoroughly understands sound building can give invaluable aid.

The handicap of a cleft palate is a story in itself which cannot be recorded here. However, emphasis can be placed on the importance of correct training. The child needs to be taught to face his problem frankly and to realize that within himself lies the power to develop and to improve his speech. He should be led to feel that speech is a beautiful thing and that his association with it can be successful and happy. Every possible approach must be used to strengthen his self assurance. This is perhaps most easily accomplished by recognizing any points of excellence he may possess and by encouraging him to develop them. Superiority in sports is especially successful in establishing self confidence.

The inability to adjust oneself to life's situations is revealed in tone quality, a truth which is given special consideration by Dr. Smiley Blanton of Columbia University. With his wife, Margaret Gray Blanton, he has done much for the effort in this country to discover the relationship between emotional disturbance and speech difficulties. To use Dr. Blanton's words, the voice is "the barometer of the emotions," the outward expression of the inward feeling. Fear of ridicule or of being misunderstood inhibits the powers of the child with a cleft palate, and his voice is thin and weak; it seems to go down his throat instead of out of his mouth. Voice projection is a necessary step in this training which is at all times the pitting of the speech worker's ingenuity against a fault.

Justice to the child with a speech disorder demands early and effective attention. Not only his happiness in life but his usefulness is at stake. We marvel at the wonders achieved by Helen Keller whose rare qualities have been liberated, as she declares, through the intelligence and devotion of her friend and teacher. Who knows what powers lie dormant in the great number of the speech-inhibited children in our schools today?

Through speech we express our hopes, our fears, our joys and our sorrows. Through it the struggles of the human spirit are made known, and we establish the meeting of minds which gives color, beauty and stimulus to living.

Merry Christmas
and Many Happy New Years

December Babies

Your Birthstone is . . . . . TURQUOISE
Your Birth Flower is . . . . . THE HOLLY
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NO matter what wonderful presents you give your parents when you're older, they'll never have a finer Christmas than this year's.

But after you've grown accustomed to things—say, in about four or five months—you're going to get your first solid food! When that Red Letter Day arrives ask for Gerber's—cereal, at first, then peas, beans, carrots, spinach, vegetable soup, or whatever your doctor-friend prescribes.

We say Gerber's, because they have the quality and appetite appeal you'll want. We know, because we plant, care for, and cook the cereal and vegetables ourselves.

You get vitamins—very important—because Gerber's are cooked with oxygen excluded. There are many other reasons for Gerber superiority. Your doctor knows them all.

But if they're "Better for Baby" that's all your mother wants to know. So look forward to Gerber's Strained Foods—in the blue-and-white cans.

MOTHERS—*Look for the Baby Department*
It's in your grocery or drug store. You'll recognize "Baby Headquarters" by the Gerber display rack which shows you at a glance every one of the nine Gerber "Better for Baby" strained foods.

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ASK YOUR DOCTOR

Gerber's
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(In Canada: *Grown and Packed by* Fine Foods of Canada, Ltd., Windsor, Ont.)
Please send me free copy of "Mealtime Psychology," by Dr. Lillian B. Storms. (Enclose 10c if you would also like birth-month data for each month and a picture of the Gerber Baby.

Name.....
Address.....
City..... *State*.....

THE MAKING AND UNMAKING OF A QUACK

(Continued from page 1080)

typewriters, one might have thought that all the ills of mankind were on his none-too-broad shoulders; that probably was exactly what the little doctor wished the typist to think.

The belief that I was making sales probably more than all else contributed to my complacence in the career I had adopted. I had had just enough previous employment as a salesman to have tasted the pleasure of closing a deal but not enough experience to teach me the ethics of salesmanship. I was finding it much easier to tell a man in Parsons, Kan., the portentous significance of sharp, shooting pains under the shoulder blades and to force on him medicines which I guessed would benefit him, than I had found it in my former occupation to convince a manufacturer in Lima, Ohio, that he should buy a motor of sufficient horsepower to carry the load of his plant. It sounds odd, but I honestly believed that I was making sales. I can see now that the money that came in as a result of my efforts was produced by first fooling and then sandbagging the sick.

My early days as a quack were free from care. In the parlance of the present, I was getting a "kick" out of my work. The business was growing with a rapidity that presaged enlarged quarters, and I was thrilled by the knowledge that I was helping to build it. Additional workers were being employed daily to keep pace with the development. The promise of a greatly increased salary was constantly before me. Being a quack was a glorious adventure. The awakening was to come.

The first jolt I received, and one that had me groggy for a time, was contained in a letter from a patient living in a neighboring town. Her disturbing message, scrawled with pencil on a piece of wrapping paper, read:

"Dr. Bill,

"I am writing this on my death bed. I have took the medicine as you directed and I can feel the hand of death taking hold of me. I want the world to know you are my murderer. I am writing another letter to the cornor so he can bring you to justice which you deserve. My hands and feet are cold and I can't write more.

"Mrs. ———— ————."

No one else had seen this note which I crumpled in my pocket pending my decision as to what should be done. I had "diagnosed" this woman's ailments and had given the order for the medicine that was sent to her; therefore I reasoned that if she should die, I might be morally, even criminally, responsible. I was too unnerved to work the rest of the afternoon, so I left the office and walked the streets until far into the night, possibly drinking too much on the way. The remaining hours were spent in fitful sleep, disturbed by visions of prison bars.

At an early hour in the morning I went directly to the home of a reputable physician with whom I was well acquainted. I had decided to tell him the whole story and to ask his advice. He was alone at breakfast and insisted that I join him. When I had unburdened myself, he asked, "And what did you think troubled this woman?"

"I diagnosed her case as one of nervous debility and a weak heart," I replied in my best professional manner. However, I had observed a sardonic smile come into the doctor's expression at my use of the word "diagnosed."

He continued patiently, "What medicines did you prescribe after you had completed what you call your diagnosis?"

I had to confess that I couldn't tell, as the medicines were known to me only by colors and numbers. The doctor snorted his contempt for such medical procedure. However, he kindly offered to do what he could to get me out of my predicament. At the same time he intensified my misery by telling me that the situation looked serious. At my suggestion he called a fellow physician by phone in the town where my patient lived, or had lived. That phone conversation seemed interminable to me; but when it ended the doctor turned to say sternly, "Well, young man, you are lucky to get out of that scrape. Let it be a lesson to you. Your patient, as you call her, is a hypochondriac. It happens she was in my friend's office yesterday with something else the matter with her, something you evidently overlooked in your diagnosis. So, strange as it may seem after taking the nostrums you chaps are sending out willy-nilly, she still lives."

The lecture that followed was a scorcher, but under the circumstances I had to sit meekly and take it. The doctor bluntly told me that I was a quack, and it would be a violation of professional confidence and decency to repeat the words he used in describing a quack, who in his estimation was lower in the moral scale than a horse thief. That was a harsh accusation to have hurled at one, for in those days horse stealing was looked on as the zero mark in human depravity. Nevertheless, the doctor's advice to me was lost in the relief I felt over learning that my patient was neither dead nor dying and that I was in no immediate danger of serious trouble. I returned to the office, looked up the meaning of hypochondriac and then, pitching into the accumulation of letters on my desk, resumed the rôle of quack.

(To be concluded)

TO PREVENT SCHOOL FIRES

1. Provide automatic control and structural fire defense.
2. Keep all exits unobstructed at all times when the building is in use.
3. Keep the fire alarm system in perfect condition.
4. Keep fire fighting equipment in good condition. Fire extinguishers should be inspected at regular intervals (to make sure that the outlet has not been closed by corrosion) and should be tested and recharged, if necessary, at least once a year.
5. Dispose of waste material and waste paper promptly.
6. Keep the janitor's quarters clean.
7. Store supplies and equipment in a regular storeroom, not in the attic or under the stairs.
8. Request annual inspection of buildings by those competent to do a thorough job, particularly in the inspection of electric wiring.
9. Observe regulations governing film projection, the use of candles, paper decorations, etc.
10. Know the location of the nearest city fire alarm box.
11. Observe the state law with regard to type and number of fire drills.
12. Keep cards of instruction or direction for drills posted in all classrooms at all times.

—*Safety Education.*

That public health originated in the attempt to relieve crude physical suffering and especially to achieve this only by preventing disease, does not take from its present or future immensely greater importance. That it has reached already its present outstanding influence is proof enough of its inherent strength, a strength derived wholly from its truth—that is, its correspondence with, not things just dreamed about, but things that *are*—not with just *some* things in the universe but with *all* things.—*H. W. Hill*, M.D.

ARCH-ENEMY OF CARBON MONOXIDE GAS IS FRESH AIR

"The first prolonged cold snap of winter always brings with it an abnormally high toll of fatalities caused by carbon monoxide gas poisoning," the National Safety Council warns. "This mysterious death-dealer strikes with little or no warning in the garage, on the highway, in the home and elsewhere.

"Motorists apparently forget all about this peril from one winter to the next. As winter wears on, they seem to be more careful to keep the garage windows and doors open when running their motors. It is unfortunate that scores of lives must be sacrificed each year before the lesson is sufficiently impressed on other motorists."

Carbon monoxide gas takes its heaviest toll in residence garages. The fact that it is odorless, tasteless and invisible makes it especially insidious. The motorist goes into his garage on a cold morning and, finding the motor cold, he proceeds to run the engine in the closed building. When no fresh air is present, a running motor will generate a sufficient amount of the gas to kill within a few minutes. The driver usually succumbs before he is even aware of his peril.

Records show that many carbon monoxide fatalities occur on the highways when the exhaust pipe becomes choked and the gas seeps up into the tightly closed car in cold weather.

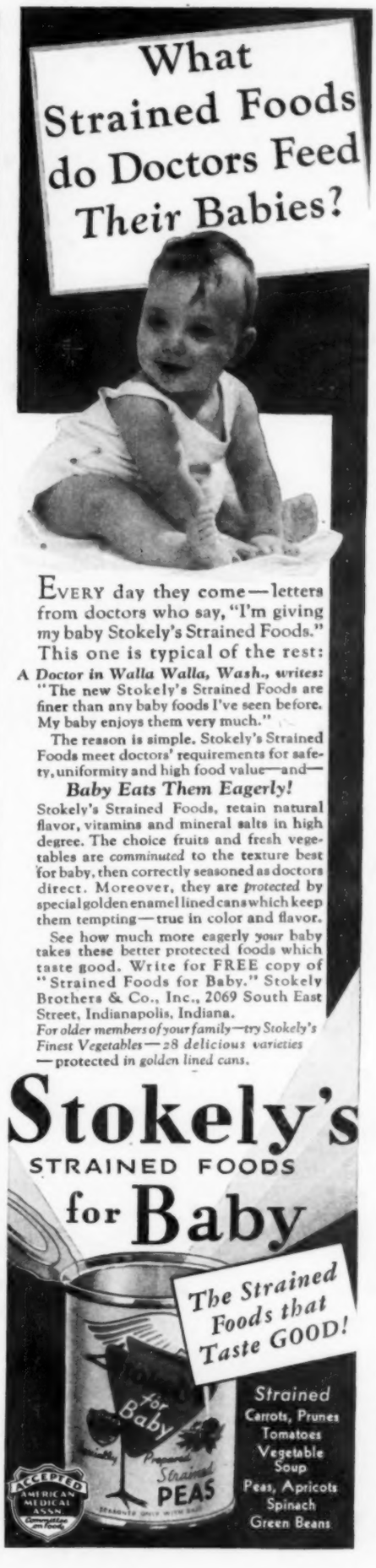
Other deaths occur from operating household gas appliances, stoves, furnaces and other heating devices which have become defective and are being used in poorly ventilated homes.

The arch-enemy of carbon monoxide gas is fresh air. Plenty of it in the garage, in the closed car and in the home will eliminate the hazard.

Scores of fatalities are averted each year, according to the Council, by the prompt and proper application of the Schaefer method of prone pressure resuscitation. The victim should be removed to fresh air immediately, and resuscitation should be begun at once and continued until he is revived or until a physician pronounces him dead.

The county nurse who works well and thinks intelligently is sure to do much more than affect the limited area in which her work lies, for she is blazing a trail that will in time become a broad highway.

—Gardner.


What Strained Foods do Doctors Feed Their Babies?
EVERY day they come—letters from doctors who say, "I'm giving my baby Stokely's Strained Foods." This one is typical of the rest:
A Doctor in Walla Walla, Wash., writes: "The new Stokely's Strained Foods are finer than any baby foods I've seen before. My baby enjoys them very much."
The reason is simple. Stokely's Strained Foods meet doctors' requirements for safety, uniformity and high food value—and—
Baby Eats Them Eagerly!
Stokely's Strained Foods, retain natural flavor, vitamins and mineral salts in high degree. The choice fruits and fresh vegetables are comminuted to the texture best for baby, then correctly seasoned as doctors direct. Moreover, they are protected by special golden enamel lined cans which keep them tempting—true in color and flavor.
See how much more eagerly your baby takes these better protected foods which taste good. Write for FREE copy of "Strained Foods for Baby." Stokely Brothers & Co., Inc., 2069 South East Street, Indianapolis, Indiana.
For older members of your family—try Stokely's Finest Vegetables—28 delicious varieties—protected in golden lined cans.
Stokely's
STRAINED FOODS
for Baby
The Strained Foods that Taste GOOD!
Strained
Carrots, Prunes
Tomatoes
Vegetable Soup
Peas, Apricots
Spinach
Green Beans
ACCEPTED AMERICAN MEDICAL ASSN.
Prepared Strained PEAS

WHEN IT COMES TO COLDS THERE ARE THREE TYPES OF PEOPLE

With respect to colds, there are three classes of people, according to a statement from the Illinois state department of health. In one class, which includes about 17 per cent of the population, are those who rarely have more than one cold a year. Those in another class, comprising about 60 per cent of the inhabitants, usually have three colds annually. Those in the third group are particularly susceptible to this ailment and have no less than four colds each year. The majority of these colds take place during the period between the arrival of frost in autumn and its departure in spring.

Improper diet is believed to be a tremendous factor in bringing on colds. At the very moment when milk and leafy vegetables are most needed, appetites demand and usually get hot stimulants, meats, heavy pastries and tuber vegetables. When short days and long nights yield a minimum of sunshine and when relatively low temperatures drive people indoors, food is practically the only vitamin source left. Leafy vegetables and fruits and milk are needed in the winter diet as sources of vitamins to compensate for the shortage of sunshine, the original source of these vital requirements of health.

Poor ventilation and overheating are of almost equal importance with improper diet as a cause of colds. The burden on the upper portion of the respiratory tract is particularly severe since no satisfactory way has been devised to protect these organs with clothing.

The other chief factor in bringing on colds is the lack of outdoor exercise in the cold months. Living indoors robs the skin of its ability to help the body regulate its heat.

No method has been discovered whereby the avoidance of colds may be guaranteed. However, observations show clearly that proper diet, outdoor exercise and regular ventilation by the open window method will result in reducing the prevalence of colds nearly one half.

It seems futile to attempt to reform education apart from the physical condition of the child; it seems unreasonable to expect healthy adolescence if we continue to neglect the remedy of the physical disabilities of childhood and the prevention of their cause.

—Sir George Newman.

A HOUSEWIFE LOOKS AT THE COMMITTEE ON FOODS

(Continued from page 1117)

weight will find it valuable. Those who are inclined to gain weight easily will find that a lump of sugar taken at the end of the meal produces a feeling of satisfaction quite as well as a large serving of pastry, and the lump of sugar furnishes fewer calories. Those who are inclined to lose weight will find that the lump of sugar can be eaten without discomfort, in addition to a satisfactory meal, and that the sugar will provide a few extra calories.

An excess of sugar or candy may add calories which are not needed and hence are stored in the body as fatty tissue. An excess amount of any food will produce the same result; hence there is no reason why sweets should be banned while proteins, starches and fats are eaten freely. This point should be clearly understood.

Refined sugar does not contain the minerals found in the sugar cane plant or in dark, unrefined sugar; however, this mineral content may not be significant in the light of the varied character of the modern diet which includes abundant fruit and vegetables. If the diet as a whole contains the necessary minerals from other foods, the loss of calcium and iron during the refining of sugar cane is not important. In planning the normal diet, the object sought is, of course, to supply in the diet adequate quantities of all the substances which the body needs. If this is done by the foods as a whole, the possible lack of a constituent or constituents in some single food which forms a part of this diet is not important. If for any reason, calcium is lacking in the diet, the deficiency may easily be made good by increasing the amount of milk or milk products. Similarly, iron may be increased, if this is desirable, by taking more fruits, green vegetables and whole wheat.

Sugar is valuable for flavoring other foods, notably desserts. As the French say, sugar "points up" the flavor of vegetables. Add 1 teaspoonful of sugar to the kettle when cooking beets, peas, string beans, lima beans, corn, carrots, parsnips, sweet potatoes, squash, onions, tomatoes, cauliflower, spinach, asparagus, beet greens or celery. It does not make the vegetables taste sweet but merely brings out the natural, fresh sweetness of young vegetables. In the same manner a small amount of sugar may be added to roast meats, gravies, pot roasts, stews, soups, ragouts, baked ham and pork chops or it may be sprinkled over bacon as it browns. Do not add so much sugar that the meat tastes sweet, unless that is the personal preference. Sugar in French dressing serves to blend together the flavors of the lemon juice and the salad oil. A mixture of 1 part of sugar to 2 parts of salt is useful on the kitchen range along with other condiments. Such a mixture can be used in seasoning vegetables. Often a few drops of lemon juice also brings out the flavor of the food better.

Sugar added to egg whites increases their ability to hold air. It is best added before the eggs are beaten. Two tablespoonfuls of sugar to each egg white makes a tender meringue if it is baked slowly, but as much as 4 tablespoonfuls of sugar to each egg white may be used.

The Christmas chicken or turkey may be beautifully glazed with a sugar syrup. First salt the fowl and sear it at a temperature between 450 and 500 F. Then reduce the heat, brush the fowl with syrup, and roast it slowly until tender. Brush the fowl three or four times during the roasting. For the syrup, cook together 1 cupful of sugar and ¼ cupful of water until the sugar is dissolved, and then add 2 tablespoonfuls of lemon juice.

To barbecue beef, select a tender cut, preferably a large tenderloin. Season and sear this under the broiler flame, brush it frequently with the syrup previously described, to which has been added ¼ teaspoonful of tabasco sauce, 1 tablespoonful of tomato catsup and ¼ teaspoonful of Worcestershire sauce, taking care that none of it drips into the pan and crystallizes. Garnish with tart, quartered, glazed baked apples. The same glazing syrup can be used for pastries and rolls, but avoid too hot an oven when baking them.

Candy cooking should be avoided on rainy days or when there is considerable humidity in the air; for under these conditions, fudge will be sticky, divinity fudge, or sea foam, will refuse to become firm, and taffy will not harden although it is pulled ever so long. If the fun of making it, rather than the resultant candy, is all that is desired, then sticky taffy and fudge that must be eaten out of a spoon will be no disaster. Children and young folk home from college like to pop corn and toast marshmallows.

Caramels and candies which contain butter and cream are stirred while they cook. Fondant and clear syrups are not stirred. The pan should be level on the stove, as the least jarring may start crystallization of the batch before it has finished cooking. When crystals form, it is important that they shall be exceedingly small; hence corn syrup in the proportion of 1 tablespoonful to 1 cupful of sugar is used in crystalline candies such as fondant and fudge. A larger proportion of syrup or molasses is used in taffy, in hard clear mints and in caramels; these candies do not crystallize as they cool.

Clear, dry weather is especially important in the preparation of glacé fruits. Cook together 2 cupfuls of sugar, ¾ cupful of water and ½ cupful of corn syrup to 320 F. Avoid scorching the syrup by using a low flame. Be sure the skin of the fruit is unbroken; dip it into the syrup with a teaspoon, and then lay it on oilcloth to become firm. It is impossible to produce results in the home that are as satisfactory as those obtained in the factory where humidity is controlled and where the fruits may be prepared more elaborately.

Black Walnut Taffy

Put into a saucepan 2 cupfuls of granulated sugar, 1 cupful of molasses, ¼ teaspoonful of salt, 1 cupful of evaporated milk and 1 tablespoonful of butter. Boil the mixture to 242 F., when it will form a firm ball if a spoonful is dropped into cold water. Add 1 teaspoonful of vanilla. Spread ½ cupful of walnut meats in a buttered pan. Pour the mixture over the nuts, and allow it to cool until it can be handled. Pull it until it is stiff and creamy; draw it out into a long flat piece, and cut with scissors.

Pop-Corn Balls

Cook together ½ cupful of molasses, ½ cupful of dark corn syrup and ½ tablespoonful of vinegar to 270 F. Add 1½ tablespoonfuls of butter, and pour the mixture slowly over 6 cupfuls of popped corn. Press the pop-corn carefully into balls so that the kernels will not be crushed.

Raisin-Nut Brittle

1½ cupfuls seedless raisins
2 cupfuls shelled roasted peanuts
1½ cupfuls walnut kernels
½ cupful Brazil nut kernels
1 cupful granulated sugar
½ cupful light corn syrup
½ cupful water
1 tablespoonful molasses
¼ teaspoonful salt
2 tablespoonfuls butter
½ teaspoonful soda

Combine the raisins and nut kernels in a large dish, and place them in the oven to heat. Combine the sugar, corn syrup and water, and cook them until the thermometer registers 290 F., or until the syrup forms a hard crack when tested in cold water. Remove the pan from the fire; add the molasses, salt and butter, and return

A HOUSEWIFE LOOKS AT THE COMMITTEE ON FOODS

the mixture to the fire and bring it to the boiling point. Remove it from the fire, add the soda, and stir it briskly until the soda is dissolved. Pour the syrup over the nuts and raisins; mix thoroughly, and pour it into a hot, well greased cookie sheet or shallow pan. Pat it into a long, thin sheet; cool it, and break it into pieces.

Sea Foam

1 cupful molasses	1 teaspoonful lemon extract
3 cupfuls sugar	½ teaspoonful vanilla
1 cupful water	⅛ teaspoonful salt
3 egg whites	1½ cupfuls nuts

Mix the molasses, sugar and water, and boil the mixture without stirring to 240 F., or until a drop forms a soft ball in cold water. Remove it from the fire; cool it for one minute, and pour it slowly over the stiffly beaten egg whites, beating constantly. When it begins to thicken, add the flavoring, salt and nuts. Beat it until thick; pour it into greased pans, and when it cools, cut it into squares.

Prune Fruit Jellies

1½ cupfuls agar-agar	1½ teaspoonfuls grated fresh orange rind
6 cupfuls cold water	1¾ teaspoonfuls powdered citric acid
6 cupfuls granulated sugar	Orange coloring
3 cupfuls light corn syrup	1 cupful finely cut preserved lemon peel
3 cupfuls uncooked prunes	1 cupful finely cut preserved orange peel
1½ cupfuls finely cut citron	
1¾ teaspoonfuls lemon extract	

Soak the agar in water for thirty minutes and melt it over hot water; this will require about one hour. Combine it with the sugar and syrup, and boil the mixture to 222 F., or until it will string in long threads when tested between thumb and forefinger. Remove it from the fire, and cool it to lukewarm. Immerse the prunes in boiling water; cover them, and let them stand for ten minutes, before draining and drying them on a towel. Cut the flesh from the pits in small pieces. Add the grated orange rind, citric acid, coloring and extract to the candy; stir until the coloring is well blended, and combine this mixture with the prunes, peels and citron, stirring until the fruit is evenly distributed. Pour the mass into shallow pans lined with waxed paper; the candy should be about ½ inch thick. Let it set until firm before turning it out of the pans onto a table or board which has been dusted with powdered sugar. Peel off the paper and, with a sharp knife, cut the candy into strips, then into pieces of desired size. Roll in powdered sugar.

[Note. — In the January Hygeia, Mrs. McCray will discuss cheese. Lists of the accepted foods discussed each month will be sent on receipt of 6 cents in stamps.]

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In a speech delivered shortly before his death, Trudeau said, "Over the doors of the hospitals for consumptives twenty-five years ago might well have been written these words: 'All hope abandon ye that enter here.' While today, in the light of new knowledge we may justly place at the entrance of the modern sanatorium the more hopeful inscription: 'Cure sometimes, relief often, comfort always.'"

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AMBROSE O'PSHAW, DETECTIVE

(Continued from page 1129)

The other boys had come up and Jimmy answered the detective's question. "Oh, no! He would never leave the woods. That isn't counted fair!"

Ambrose sighed. He had become a bit weary of the game. "Well, we will look once more. Let's untie Misty and let him help; evening will soon be here, and we must finish this game as quickly as possible."

Under his direction, the boys spread out in fan formation and went through the woodland, shouting, "We give up, Posey! You win!" They explored every acre of woods and even scoured the meadow beyond. They shouted and whistled, but their only reply was the mocking call of the blue jays. Thinking Posey might be dodging about in the underbrush, they went over the old trails again and again, each time becoming more uneasy. Finally they met under the oak once more to compare notes.

"Where can he be?" Jimmy inquired anxiously. "You don't think—" he gulped suddenly.

"He surely is teasing us by keeping just out of sight," Ambrose assured the boy, although he was himself beginning to be doubtful. "Misty surely can give us a hint of some sort, can't you, Misty?"

"I don't know where he is!" Misty said, shaking his head.

"Can't you remember some little thing that might help?"

"Huh-unh! I don't remember anything. It seems like I've forgotten something important, but I just can't think what it is."

"Try hard!"

But Misty's mind refused to reveal its secret, and the search began once more. The weary little group peeped beneath every heap of brush, peered into the branches of every tree, explored each tuft of grass and again came back to the oak tree. They were tired and frightened.

"He might be in—in the river," Carrots suggested, swallowing painfully.

"He is a f-fine swimmer," Henry said, trying to seem unconcerned, but his lip trembled in spite of him.

"Perhaps we had better walk along the banks and search for signs," Ambrose said. "He may have left footprints in the sand." He hoped his voice sounded cheerful.

The search along the bank was thorough, but uneventful, except that Ambrose was suddenly and unexpectedly plunged into the water when the bank broke away with him. He crawled from the river and went on with the hunt. Since no signs were found along the water, he directed the boys to spread out and search the woodland once more.

When the group came back to the oak again, the sun had disappeared behind a cloud, and a chill wind swooped down from the northwest.

It would be hard to imagine a more miserable party than the one huddled beneath the big tree. Ambrose's teeth were chattering with cold and wet, and the boys huddled together for comfort. They were worn, tired and hungry, and fright had added to their misery. They tried to appear brave, but their downcast faces told plainly enough how uneasy they were.

"I wish I could remember what I forgot," Misty muttered.

"There's no need trying!" his brother snapped.

"I think we had better go into the village and call out a searching party of men," Ambrose said, shaking from cold. "It seems to be turning quite cold, and that cloud looks like a storm."

"I bet poor Posey is awfully cold somewhere," Misty sniveled, and tears ran from his dull eyes and down his dirty cheeks.

"Use your handkerchief, brother," Jimmy said.

The boy obediently pulled a large handkerchief from his pocket, and a shower of small pieces of white paper fell on the grass. He stared at them.

"What are those bits of paper?" Ambrose said.

Misty scratched his head. "Gee, I dunno," he sniffled. "They are something important, but I forget what."

Jimmy stooped and gathered up the papers. "Why, look at them!" he cried. "They have letters on them, in red!"

"Yes," Misty said. "Blood!"

"Blood!" The boys drew back and stared at the papers in horror.

"Yes," Misty said. "Blood! Berry juice!"

"What?" the detective almost shouted. "Where did you get them?"

"Why—why, Posey put them in my pocket," Misty said, as if a great light had burst around him. "They are a code telling where he went."

Ambrose seized the scraps and hastily arranged them on the ground. All at once he burst out laughing, forgetting for a moment how cold, tired and hungry he was. "Look here!" he said.

The boys crowded about and stared at the line of papers. There, in plain red and white, was the

AMBROSE O'PSHAW, DETECTIVE

word "home," scrawled in large smeary letters. After the final "E," Posey had written "Ha ha" in smaller letters.

"That's Posey's work, all right!" Henry said.

"Posey always has a laugh," Jimmy smiled, but his lips trembled.

"Whew! What a relief!" Ambrose exclaimed. "I don't mind telling you that I was terribly worried. I thought—A-chew! A-chew!"

"You are taking cold," Carrots said. You had better hurry home and go to bed."

"A-chew!" said Ambrose. "I'm sure your advice is good." He started toward the road, with the boys at his heels.

"Well, we solved that mystery without help, didn't we?" Jimmy said.

"Indeed we did!" the boys answered.

But Ambrose was silent. He was thinking that the greatest mystery was yet to be solved.

"What could ever happen to make a boy forget the most important part of a game?" he was thinking. "Something must be dreadfully wrong. My next chore will be to solve the case of poor Misty."

(To be continued)

TO PREVENT INFECTION

It is surprisingly easy to prevent most infections; attention to a few principles will go far toward reducing the number of seriously infected wounds, a bulletin issued by the Chicago Tuberculosis Institute points out.

Never put your fingers or dirty handkerchief on a wound and never apply adhesive tape or court plaster directly to a wound. Many salves, applied to a cut, aid infection. So-called protective substances may aid rather than deter infection when they are applied directly to the wound so that they shut off air.

Apply an antiseptic immediately when the skin is broken, and then cover the wound with a sterile dressing. These dressings should be changed when soiled, loose, wet or uncomfortable.

If swelling or pain develops in or about a wound, see a physician at once. The majority of cases of blood poisoning develop from small injuries to the fingers and hands. Great importance should be attached to the smallest injury. "A wound infected is a cut neglected."

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HYGEIA

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STRUCTURAL ABNORMALITIES OF THE EYE

(Continued from page 1121)

The best time to carry out the exercises is when the child feels fresh and energetic, probably about 9 a. m., and again in the afternoon following the nap. The child's good eye should be covered for half an hour each time; the time should be gradually increased to an hour or more. The mother should take an active part in the exercises as an example and encouragement to the child. She must see to it that the child actively employs the uncovered, squinting eye during each period of exercise; if the eye merely roams at large and fails to fix definitely the objects employed, not much is accomplished. For young children, small objects in kindergarten games are best. For older children, reading with the good eye closed will do. Here, too, it is advisable for the child to read aloud while the mother listens; otherwise the attention wavers, and the eye wanders away from its task.

The development of the fusion faculty takes place between the ages of 3 and 6. Fusion exercises are calculated to coincide, in time and rhythm, with nature's own attempts. They should therefore be started at an early age and be practiced several times daily, and an element of play should be combined with them. Their objective is so to train the sight center in the brain that the two eyes will see as one.

In these exercises the two eyes are, of course, used at the same time. A device called the amblyoscope, adjusted to the angle of the squint when first started, is employed. Gradually the angle is diminished while fusion is maintained until the eye is straightened. A pencil held vertically in the line between the eyes and before a printed page is another way of compelling the two eyes to work together. At first the pencil is held close to the eyes and later close to the page read.

Exercises in moving the eyes consist of making the eyes follow a pencil as it moves in an opposite direction to that toward which the squinting eye is turned. This is repeated several times a minute and carried on for fifteen minutes three times daily. After a careful study of each case the eye physician prescribes the kind of exercises, the number of times they shall be done each day and the length of the exercise period for each day. A check-up of the results obtained is made during visits to the doctor's office.

Some cases of squint require an examination of the nose and sinuses, as these may be responsible for the condition.

An invaluable aid to all the means discussed is the basic factor of general good health, sufficient food and sleep, proper play, proper habits of posture, good light for reading and avoidance of overuse of the eyes.

If all the other measures, diligently carried out, fail to bring about a cure of the squint within a reasonable time, an operation should be performed.

With regard to such an operation it is well to remember that the earlier it is performed, after all other measures fail, the better. If surgical intervention is delayed too long, the eye will be straightened out, but the sight will not be improved. Operation can be performed as early as the third or fourth year. If glasses do not straighten the eyes, the operation should be performed before the age of 6. There is no danger and no great discomfort in the operation; it may be done under local anesthesia, and the patient need not as a rule stay in the hospital longer than two or three days. The cost of the operation is moderate and within the means of most families, and there are eye specialists everywhere who are willing without charge to help poverty-stricken patients, either privately or as part of their work in public clinics.

Parents who have a child with a crooked eye should earn his lifelong gratitude by getting it straightened. Or if a neighbor's child has cross eye and nothing is done about it, a kindly word and sympathetic advice may help that child. The family physician and the children's specialist can help greatly. Teachers, school health officers and school nurses have a special duty with regard to squinting children and should use their influence with parents and guardians in advising treatment and persistently following up cases to see that treatment is carried out. Sunday-school teachers, ministers, superintendents of children's homes and nurseries can and should lend their influence. Employers can do their share. For every sufferer with a crooked eye there are many persons who do not see their duty straight. An active crusade in behalf of such unfortunate children is necessary.

In nystagmus, the eyes jerk, and while in the main looking straight ahead, they make swinging movements back and forth, from side to side, up and down or in a wheel-like fashion. Nystagmus is different from squint, but some of the same causes are responsible, such as greatly reduced sight in early infancy, opacities of the cornea, astigmatism, retinal disease, diseases of the ear, albinism and diseases of the nervous system. Miners often develop nystagmus because of work under insufficient light.

The condition produces apparent movements of objects, dizziness, tilting of the head, poor vision and other disturbances.

Exercises help to remedy the condition in certain types of cases, but the infantile variety usually persists. If ear disease is responsible, the ear should be treated. Miners cease to suffer when they return to normal living conditions.

Any of the muscles that move the eye may become paralyzed. When that happens, the muscle loses its power to contract, to make itself shorter; and so it cannot pull on the eye and move it in its own direction to balance the pull of the opposing muscle. Sometimes more than one muscle is paralyzed at the same time; at other times there is only a weakening of the muscle, a partial paralysis.

The first thing that is noticed in such cases is that the affected eye does not move normally with its fellow in all directions. If it does move, it lags behind and stops short of the full excursion. If, for instance, it is the outer muscle of the right eye that is paralyzed, that eye can move with its fellow to the left but not to the right. The good eye goes on, but the injured one stands still and shows a squint. Moreover, its opposing muscle pulls it over to its own side, getting the affected eye still more out of line. This results in double vision, or diplopia, because the image of an object located on the side of the paralysis does not fall on the corresponding spots in the two eyes. Dizziness results from the attempt to fuse the two images seen. Since the eye cannot move in the direction of an object located on the side where it is paralyzed, the attempt is sometimes made to bring the eye in a straight line with the object by moving the head toward that side and holding it that way, which results in tilting the head. All the usual ill effects of squint are present.

Paralysis is caused by disease of the nerve itself, or more often, by such conditions as congenital hemorrhage, skull fracture, syphilis, tumors and rheumatic diseases, all affecting the surrounding structures in the brain or orbit.

Treatment for the cause is given in the first place, and may be, for

STRUCTURAL ABNORMALITIES OF THE EYE

instance, antisyphilitic or antirheumatic. Tonics and electricity may help. Transplantation of normal tendons into paralyzed muscle gives good results.

Every one has noticed persons with drooping eyelids, or ptosis. Sometimes the droop is slight, or the entire eye may be closed over, so that it is not possible to see with that eye unless the lid is pulled up with the fingers. Some persons manage to see by contracting the muscles of the forehead and throwing the head backward.

When ptosis exists at birth, it usually affects both upper lids and is due to lack of development or absence of the lifting muscles.

The acquired form may result from an injury of the muscle in the region of the upper margin of the orbit. Most often it is caused by paralysis of the nerve of the lifting muscle. The droop may come and go and vary in degree from time to time if the muscle action is merely weak and its state is conditioned by other factors.

In elderly women, rarely in men, it sometimes happens that the lifting muscles degenerate and the lids droop on both sides.

There is a variety of ptosis that is not due to paralysis but to the heaviness of the fat-encumbered skin over the lid or to a thickening resulting from old disease processes.

In each case the cause should be determined and eliminated if possible. Operations are performed for lifting drooping lids.

[NOTE. — In the January HYGEIA, Dr. Cohen's subject will be "Diseases of the Eyes: General Considerations."]

CORRECTION

In Dr. Hyman Cohen's article entitled "What You Should Know About Eyeglasses," which appeared in the November issue, an error was made in the diagram on page 1018. The farsighted eye is shown in diagram *D*, and its correction is shown in *B* and *C;* the nearsighted eye is shown in diagram *A*, and its correction is shown in *E* and *F*.

PHYSICAL EDUCATION CONVENTION

The national convention of the American Physical Education Association and its Eastern District Society will be held in Pittsburgh, April 24-27, 1935.

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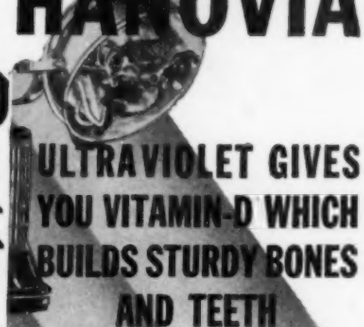

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Health is the greatest human asset—the most important form of wealth—the resource of our livelihood—the physical basis of our ability to enjoy life—and by far the best and most glorious legacy you can give your child.

The Home Model Alpine Sun Lamp will bring you the beneficial ultraviolet—the activator of Vitamin-D.

About 90% of all Quartz Lamps used the world over are "Hanovia."

It is not sold to treat sickness. When you are sick consult your doctor.

Accepted by the American Medical Association Council on Physical Therapy

HANOVIA CHEMICAL & MFG. CO. NEWARK, N. J. (Dept. 53)

Send me Reasons why Hanovia is the Best

Name .....

St. & No. .....

City & State .....

HOME MODEL

ALPINE SUN LAMP

TABLE MODEL—$99 F.O.B. Newark, N. J.

Physiologic Birth Control

THE RHYTHM

Of Sterility and Fertility in Women

A Discussion of the Physiological, Practical and Ethical Aspects of the Discoveries of Drs. K. Ogino (Japan) and H. Knaus (Austria) Regarding the Periods When Conception is Impossible and When Possible.

By LEO J. LATZ, M.D., LL.D.

60th Thousand

75 cents and $1.00 per copy

at bookstores or from

LATZ FOUNDATION

1235 Republic Building CHICAGO, ILL.

Write your name and address on a postal card, mail it to us and we will send you our

FREE PAMPHLET

Mention HYGEIA when writing to Advertisers

BETTER INDUSTRIAL HYGIENE IS NEEDED TO BETTER THESE STATISTICS

A bulletin, *Health News for Industrial Management,* published by the Chicago Tuberculosis Institute quotes the following facts relating to the cost of accidents and ill health in American industry and other observations made in the field of industrial hygiene:

1. In 1932 about 30 per cent of all compensated industrial accidents were for injuries to the hand and fingers, and 72 per cent of all infections following injury developed in those members.

2. The average cost of all infected injuries in 1932 was $198 as compared with $192, the average cost of all punctures, lacerations, contusions and burns.

3. Tuberculosis is the greatest cause of death between the ages of 15 and 45.

4. Syphilographers have placed the incidence of syphilis among the adult population of the country at between 8 and 10 per cent. One large industry reports that of 4,568 applicants for employment, 451, or almost 10 per cent, gave positive reaction to the Kahn test.

5. Today a greater number of deaths and accidents are caused by the machinery of civilization than occurred within the same period of time in the American army during active fighting in France at the time of the World War.

6. Analysis of insurance company statistics shows that after the age of 35 overweight is associated with an increasingly high death rate.

7. One out of every two industrial workers has defective vision.

8. Studies of industrial morbidity made by the U. S. Public Health Service indicate that the greatest percentage of lost time in industry is caused by respiratory disease.

9. Pneumonia, in all forms, occurred in nearly twice the amount among iron and steel workers as it did among employees of other industries during a three year period of observation.

10. There is a definite tendency for textile workers to be under the average weight of American industrial workers. This tendency was more pronounced, however, with increasing length of service.

11. It is estimated that there are 90 million accidents in the United States annually. Only 3 million receive compensation; the other 87 million receive medical attention only and produce an average loss of $2 each. The 3 million compensated accidents cost 738 million dollars for medical care.

12. Back injuries caused 25 per cent of all lost time cases in New York State in 1930.

13. Actual experience proved that it was not unusual for the frequency of accidents in industry to drop from 85 per cent to 75 per cent as a result of sustained and proper safety activities and medical supervision.

14. The right of the state to inspect factories and exercise some control over the hygienic environment of workers was established in Great Britain about 100 years ago.

15. In the United States, eye accidents in industry cost approximately 50 million dollars in 1932.

Better to step on the brake and be laughed at than to step on the accelerator and be cried over.

Here are the interesting, true facts about Kellogg's ALL-BRAN

ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COMMITTEE ON FOODS

APPROVED BY GOOD HOUSEKEEPING INSTITUTE

LABELED TO CONFORM TO THE U. S. GOVERNMENT RULING

★

USED BY MILLIONS ALL OVER THE WORLD

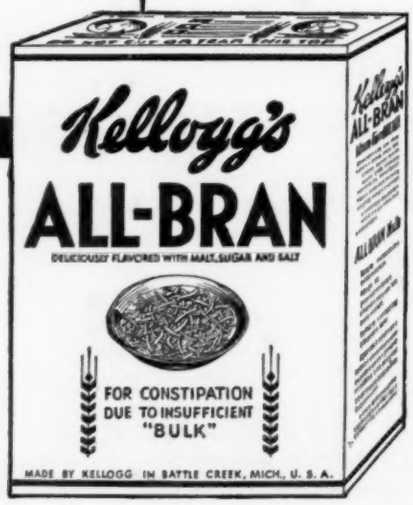
MUCH unhappiness and ill-health are caused by common constipation—due to lack of sufficient bulk in the diet. This condition can be corrected easily, pleasantly and economically, by adding one delicious cereal food to the average diet — Kellogg's ALL-BRAN.

ALL-BRAN provides the fiber of wheat in a delicious form, cooked, crumbled and flavored. Two tablespoonfuls daily, eaten as a cereal with milk or cream — or used in cooking — usually is enough to supply the needed bulk.

Millions of people have proved the efficacy of ALL-BRAN. Scientific tests have shown it to be a gentle and natural food way to relieve constipation. It can be used regularly without losing its effectiveness. The American Medical Association Committee on Foods has given Kellogg's ALL-BRAN its seal of acceptance. ALL-BRAN is also approved by Good Housekeeping Institute.

You can have confidence in Kellogg's ALL-BRAN. It is labeled to conform to the U. S. Government ruling and is a true bran product — not a "part bran" or a "mixed bran."

Made and guaranteed only by the Kellogg Company of Battle Creek. Sold by all grocers in the red-and-green package.


Kellogg's
ALL-BRAN
DELICIOUSLY FLAVORED WITH MALT, SUGAR AND SALT
FOR CONSTIPATION DUE TO INSUFFICIENT "BULK"
MADE BY KELLOGG IN BATTLE CREEK, MICH., U. S. A.

DIPHTHERIA Is Easier and Cheaper To Prevent Than to Cure

Diphtheria can be cured only by your doctor's giving antitoxin. But frequently the disease starts so quickly that you may not suspect your child has it, so that you may call the doctor too late for the antitoxin to cure the disease.

But you can protect your child against coming down with diphtheria by having your physician give immunizing treatment. This will guard your child against diphtheria. Diphtheria is easier and cheaper to prevent than to cure.

BABIES SUPERVISED BY PHYSICIANS ARE BETTER BABIES

COPYRIGHT 1934, M. J. & CO.

This space is devoted to the interest of better babies by
MEAD JOHNSON & COMPANY, *Evansville, Ind., U.S.A.*

Among Hygeia Advertisers

During the last fifteen or twenty years we have learned much about foods.

Some of these nutritional discoveries, such as the vitamins, were so surprising as to border on the dramatic. No doubt if one of the ancients had discovered the "Elixir of Life" or if the aged Ponce de Leon had actually found the "Fountain of Youth," the discoveries would have been little more amazing to them than the spectacle of a modern biologist changing a crazy, paralyzed pigeon into one of normal sense and activity by the administration of a mere speck of one of the vitamins.

It is therefore not surprising that the influence of these revolutionary discoveries about food should creep into and become an important part of modern food advertising. Nor is it strange that this trend in advertising should be carried to extremes and that there should be a backwash of opposition to the health or scientific angle in advertising. In fact, there are those who insist that the time has come "to take the vitamins out of advertising" and persuade people to purchase foods simply because they taste good and satisfy the appetite.

Would that really be desirable? Regarding the pleasure of eating there is no argument. However, a moderate degree of intelligence about foods and their nutritional values need not diminish one's pleasure in eating them. In fact, the pleasure should be enhanced. There is delight in driving a new, smooth-running automobile, but the thrill is just as great to the person who knows the meaning of "carburetor," "clutch," "valve," or "piston," as to the utterly uninformed driver whose knowledge of the working parts of the car goes no further than the gas pedal and the horn.

Perhaps the situation we are in with respect to food discoveries may be somewhat akin to that which existed some fifty or sixty years ago following the momentous discovery of germ life by Pasteur. Undoubtedly a great part of our population has never actually seen a germ and knows little about the science of bacteriology. Yet who can deny the great benefit that has come to people in general by knowing something about germs and as a result using proper first-aid measures for wounds, exercising care against typhoid-contaminated water or employing immunization to save children from diphtheria? It is hardly conceivable that improper nutrition would ever cause such havoc as disregard of disease germs. But on the other hand, if the so-called "vitamin advertising" has done nothing more than to cause mothers to take precautions for protecting their babies against rickets and imperfect bone and tooth structure, it has accomplished untold good.

On the opposite page is an excellent example of this type of advertising—that of Pet Milk, which is now made better than ever before by incorporating into it a generous amount of vitamin D, the vitamin needed for good teeth and bones. Since vitamin D is absent in so many of the ordinary foods and since Pet Milk is so highly suitable for many purposes, why not make it a habit to use this brand of milk regularly in your home and get the extra benefit of its vitamin D content? You will be surprised at the number of ways in which Pet Milk can help provide tasty and appetizing dishes for your family. A recipe book may be obtained without charge.

This is the season when late pears are at their best. You can enjoy them in many different ways—between meals, as a dessert fruit, in salads, in pies, or baked. But you can appreciate them just a little bit more by knowing some of the newly-discovered facts about their nutritional values. The Oregon Medical College and Oregon State Agricultural College have made a two-year study of pears and some of their important findings are set forth in the advertisement on page 1062. You can obtain a very interesting recipe book, "Spicing up the menu with Late Pears," on request.

Bran is an excellent example of a food whose proper place in the diet has been clarified by scientific research. Our ancestors ate it along with the rest of the grain of the wheat because they had no means of separating it. With the development of milling machinery, the complete removal of bran was made possible. Following this there developed a feeling that man must add great quantities of roughage to his food. Extremes followed and many persons used undue amounts of rough, coarse food. Now we know that bran may well have a rightful place in the diet. If one's food is of a concentrated nature, with a small cellulose or bulk content, then the deficiency can be easily and pleasantly made up by adding a reasonable amount of bran. Kellogg's All-Bran, described on page 1152, is a whole bran product and as a rule a couple of tablespoonfuls daily will supply the necessary bulk in the diet. You will find additional facts of interest in the advertisement.

I have previously mentioned the benefits that come from having some information on medical discoveries. The message from E. R. Squibb & Sons on page 1066, "The Light that Shines for All," expresses this thought far more tellingly than any words which I could use. But it is well to reflect that in order to make some of our most important medical discoveries of practical value, a vast amount of work by manufacturing chemists and the finest of manufacturing facilities are necessary. I suggest you watch for these advertisements of E. R. Squibb & Sons. They are full of information and inspiration.

How much are you paying for toilet soap? Procter & Gamble operate on the principle that the prime function of a soap is to act as a pleasing and effective cleansing agent. They do not feel that such a soap need be expensive. Hence their declaration, "Even if we charged you $1.00 a cake, we could give you no finer soap." The prudent housewife can well buy Ivory and encourage the family to use plenty of soap without thought of great expense.

How many times have you wanted a hot water bottle when no hot water was available? Now you can obtain its equivalent in the "Ovr-Nite" Heating Pad, but this pad is actually self generating. You need add but one ounce of water to its contents and within a few minutes a temperature of 170° is developed. It will retain this temperature for a period of ten hours, if desired. You can order one of these pads direct from the advertisement on page 1147. Many autoists, hunters and outdoor sportsmen find the pad an excellent protection against extreme cold.

Charles S. Mohler

ADVERTISING EDITOR

Will you neglect it?

Can you afford to neglect the supply of the precious sunshine vitamin D for your children when all authorities say they must have it to make their teeth and bones grow straight and strong? All of us probably need to make our teeth and bones stay sound.

Winter sunshine doesn't create it for us. Our normal foods do not contain enough of it. Even milk—the most nearly perfect food—contains little.

Pet Milk is enriched with vitamin D—not by adding any foreign substance to it—just by letting ultraviolet rays, produced by electricity in Pet Milk plants, shine on the milk. That is nature's own method of creating this precious vitamin.

By using Pet Milk you can give every member of your family an extra supply of this important vitamin.

Thousands of families use Pet Milk for every cream and milk need—for baby's bottle—for children to drink—for every table and cooking use. This extraordinary milk costs less generally than ordinary milk; takes the place of cream—it whips—at less than half the cost of cream.

Send for these free books which tell about this new extra quality in Pet Milk:

"More Nearly Perfect—When Baby Needs Milk from a Bottle"—gives complete information on the value of Pet Milk for babies, and twenty-five recipes especially designed for small children.

"From Soup to Dessert with the New Irradiated Pet Milk"—beautifully illustrated—fifty tested and approved recipes for seasonal dishes appropriate for the whole family.

Look for the word "Irradiated" on the face of the Pet Milk label

Send for the FREE *books*

PET MILK COMPANY
1429 Arcade Building, St. Louis, Mo.
or Dept. 2912 4 California St., San Francisco, Calif.

☐ *"More Nearly Perfect—When Baby Needs Milk from a Bottle"*
☐ *"From Soup to Dessert with the New Pet Milk."*

Dr._____ Address _____

City _____ State _____

Fill in completely, print name and address. Offer limited to residents of Continental U. S.

Give HYGEIA This Christmas!

Use This Handy Gift List and Save Hours of Shopping

GIFT LIST

In the spaces below write the names and addresses of those to whom you wish HYGEIA sent, and check the proper subscription desired. Sign your name and address at the bottom of this list, and mail it today with your remittance for the correct amount.

Christmas Subscription Rates

Single Subscription to HYGEIA, $2.50
2 Gift Subscriptions for $4.00
3 Gift Subscriptions for $5.00
Each Additional Subscription, $1.25
(Foreign Postage 75 cents extra per year)

AMERICAN MEDICAL ASSOCIATION,
535 North Dearborn Street, Chicago

Enclosed find $.... for subscriptions to HYGEIA.

☐ New ☐ Renewal ☐ 1 year ☐ 2 years ☐ 3 years

Name .....

Address .....

.....

☐ New ☐ Renewal ☐ 1 year ☐ 2 years ☐ 3 years

Name .....

Address .....

.....

☐ New ☐ Renewal ☐ 1 year ☐ 2 years ☐ 3 years

Name .....

Address .....

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☐ New ☐ Renewal ☐ 1 year ☐ 2 years ☐ 3 years

Name .....

Address .....

.....

☐ New ☐ Renewal ☐ 1 year ☐ 2 years ☐ 3 years

Name .....

Address .....

.....

Sent by.....

Address .....

.....

Wouldn't HYGEIA make a fine Christmas gift! It would be wonderful if you could send big packages of health, neatly wrapped and tied with bright ribbons. But since you can't do that, send HYGEIA with its **authentic** information on getting and keeping health. That would be a prize package arriving every month in the year!

You know what HYGEIA is—what a world of helpful and entertaining information it gives on practical matters of health. Every reader finds something of special interest to him in HYGEIA, something that will help him to understand his health problems, to keep himself in better health so he can get more enjoyment out of life. Always it gives the bright and hopeful side of health, with strict regard for scientific truth.

HYGEIA would be a suitable gift for Aunt Ella, for your cousin in Wyoming, for your child's teacher, for the friend you visited last summer. Anyone who is interested in health (and that takes in just about everyone!) would enjoy reading HYGEIA and would find it helpful.

Then why not fill out the convenient order blank at the left and mail it today? You can be sure of sending a gift that will be appreciated—and that will not be too hard on your purse. HYGEIA is something you will enjoy giving—and others will enjoy receiving.

A Beautiful Christmas Card

will be mailed to each one to whom you are sending HYGEIA, announcing your gift and carrying your wishes for good health and good cheer.

"Jane seems to have lost interest in her school work. And when I try to revive her interest... try to get her to pay attention... she responds with either sullen silence or a defiant attitude. Won't you see what you can do?"

WHEN the teacher sends a note like that, what should you do, Mother? Resort to disciplinary measures? Promise a prize for better work?

Maybe a scolding is needed. Maybe a reward. But maybe either will simply aggravate the *real* trouble.

For when a child begins to slip in school, it's likely that some physical disorder is at the bottom of it—a disorder which, if permitted to continue untreated, might cast a shadow over all the long years that lie ahead of the child. And the wise thing, therefore, is to consult your doctor.

He might quickly interpret the trouble as approaching deafness; for he knows that "lack of interest" and "defiant attitude" may merely be the child's subconscious efforts to hide the affliction from the rest of the class. Impaired hearing is a common cause of impaired schoolwork.

But it is not the *only* cause. "Slowness" can frequently be attributed to failing eyesight . . . "inability to concentrate" may be traced to underactivity of the thyroid gland . . . "indifference" may be anemia putting a drain on the child's vitality.

There are many other things that may be wrong—disorders that can easily hide their true meaning from the child, the teacher, and the parents . . . but *not* from the penetrating knowledge of the doctor.

If your child's work in school is not all it should be—if it has shown a steady tendency to slip from a former standard—see your doctor. You owe this sensible step both to your child's happiness and to your own future peace of mind.

PARKE, DAVIS & COMPANY
DETROIT, MICHIGAN
The World's Largest Makers of Pharmaceutical and Biological Products
NRA

New Nutritional Values *found in* Ancient Fruit

Since the dawn of history Pears have been celebrated for their deliciousness and wholesomeness. Now Science has discovered the reason.

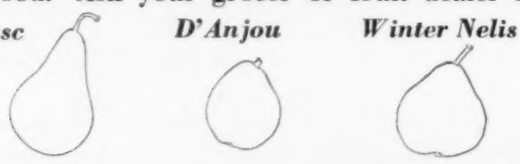
Two years of intensive research by the Oregon Medical College and the Oregon State Agricultural College Experiment Station have shown that the leading varieties of late pears contain:

1. ***Vitamins—good sources of Vitamin A, which protects the eyes and aids in building up general resistance to infection, and of Vitamin C which prevents scurvy—especially high in Vitamin B, which is essential to normal appetite and proper functioning of the intestinal tract and the nervous system.***
2. ***Minerals—small amounts of calcium, phosphorus, iron and copper.***
3. ***Levulose—their sugar-sweetness is due to the large proportion of levulose—twice as sweet as cane sugar.***

Persons who cannot tolerate the more highly acid fruits can eat these pears freely because of their mild acidity, alkali-yielding minerals and low buffer value.

EAT PLENTY OF LATE PEARS

They offer a pleasing variety and are an economical food. Ask your grocer or fruit dealer for

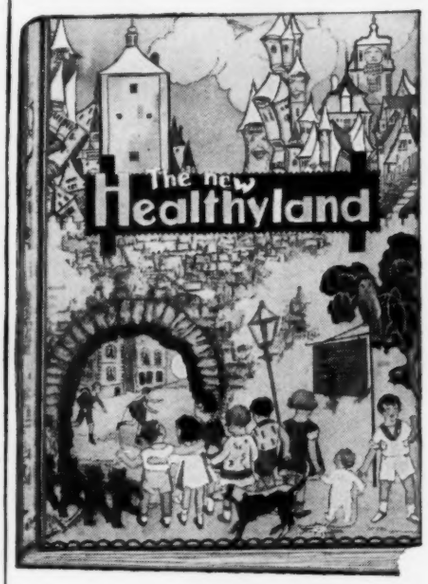


Right now Bosc Pears are at their best. Eat them as dessert fruit or in salads, in pies or baked. Write for free illustrated recipe book "Spicing up the menu with Late Pears" or for children's jingle book "How Ned and Molly met the Vitamins Jolly" with outline illustrations for coloring. Oregon-Washington Pear Bureau, Department H, 609 Ranke Bldg., Seattle, Washington.

OREGON-WASHINGTON

LATE *fresh* PEARS

HEALTHYLAND



Was $2

NOW *only* $1

Price Reduced One-Half to Close Out Stock

This beautiful big story book, made up of the popular health material for children that has appeared in HYGEIA, has delighted thousands of children. And it has taught them the lessons of health in an enchanting way.

Only a few hundred copies remain, and in order to close them out at once the price has been cut exactly in half. The book is just as entertaining and appealing as ever. And it is a great bargain at this low price!

A Big Colorful Book Children Love

The 168 large size pages of this book are filled with fascinating pictures, many of them in gay colors. Printed in large type, easy to read, are delightful health stories, verses, and health plays that children can give. There are also interesting letters from children in seven foreign countries telling about their various health customs.

Take advantage of this special price and get several copies of HEALTHYLAND now for gifts. The book would be delightful for any child—your own or some one else's whom you wish to remember at Christmas time or on birthdays. But order *now!* At this special low price the limited supply will not last long.

Order HEALTHYLAND Now for Christmas Gifts

AMERICAN MEDICAL ASSOCIATION H-12-34
535 North Dearborn Street, Chicago.

I am enclosing $..... for ..... copies of the NEW HEALTHYLAND at $1.00 a copy.

Name.....

Address.....

.....

ALL OF A SUDDEN, THE POWERFUL KATRINKA'S LITTLE BROTHER GETS COMPLETELY OUT OF HAND!

"IT'S THAT POST'S 40% BRAN FLAKES SHE'S BEEN FEEDING HIM!"
"HE PULLED THE PUMP RIGHT OUT!"
F. Fox
Breakfast appetites "pick up," too, when you serve Post's 40% Bran Flakes . . . . How the children love its nut-like flavor!

That's stretching it a bit?

A Delicious Cereal
Post's 40% BRAN FLAKES
WITH OTHER PARTS OF WHEAT
MALT SYRUP, SUGAR AND SALT
THE NEW CRISP PACK
A Gentle Laxative

Well, as a matter of fact . . . we really think so, too!

TO tell the truth, we'd be rather amazed ourselves to find our Post's 40% Bran Flakes the source of such prodigious strength!

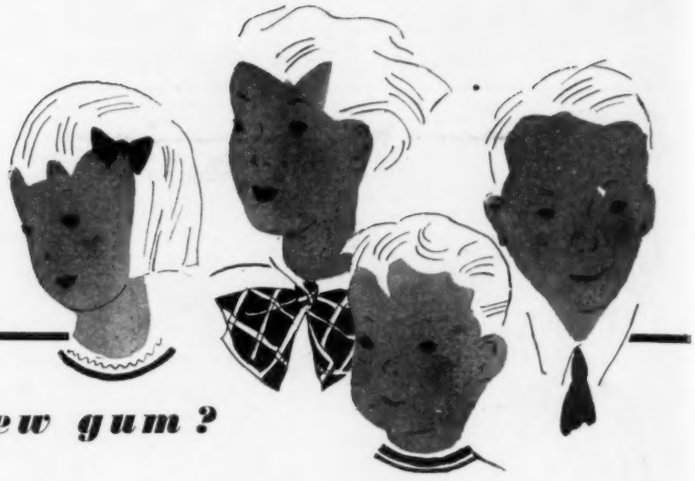
We do think, though, that it might pay you to try this delicious cereal . . . particularly if you're feeling a little bit "draggy" . . . and not quite up to a *real* day's work.

For such a condition often comes from a sluggish intestine, due to lack of bulk in the diet. And Post's 40% Bran Flakes contains bran to supply the bulk you must have to help keep food wastes moving, naturally and easily, along the intestinal tract . . . and to help keep you regular and fit.

It also contains other parts of wheat, to give it that appetizing, nut-like flavor.

So why not try it! You'll love its flavor . . . and you may find it will make a difference in the way you feel.

Post's 40% Bran Flakes With Other Parts Of Wheat is a product of General Foods. Every grocer has it... and it costs so little!



Why—

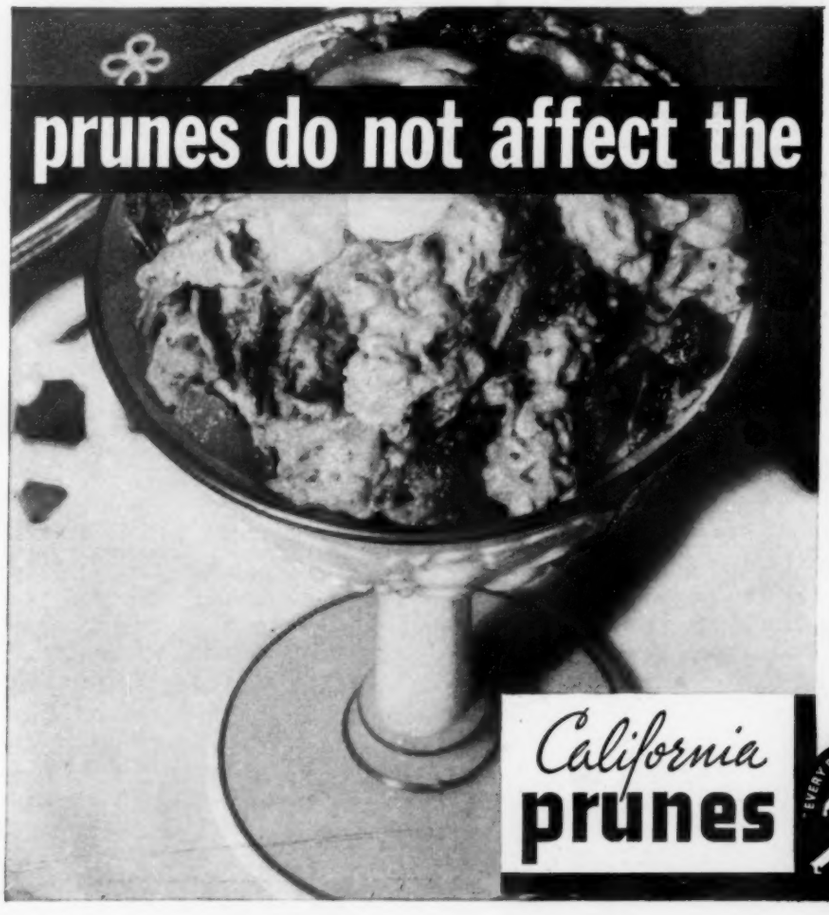
do children like to chew gum?

THERE is a natural human need for young people to give their teeth and jaws more chewing exercise than is supplied by present day Soft Foods. Chewing exercise aids in maintaining properly spaced teeth and in developing a well shaped mouth. Gum is good for children. There is a Reason, a Time and a Place for chewing gum.

THE NATIONAL ASSOCIATION OF CHEWING GUM MANUFACTURERS

Four Factors that Help Teeth Last a Lifetime Are: Proper Nutrition, Dentist's Care, Personal Care and Plenty of Chewing Exercise

O-216



prunes do not affect the ALKALINE RESERVE

As a result of recent scientific research, it has been determined that California Prunes *do not* affect the alkaline reserve of the blood. This increases the importance of prunes in the diet, and will be "news" to many who formerly have held a contrary belief.

Research has uncovered many other new things about California Prunes, too: That they possess, *in addition* to their bulk, a *second* important active laxative agent—readily distinguished from roughage due to its presence in prune *juice,* as well as in the whole fruit.

Send for free booklet describing this recent research in detail and many new ways to serve delicious California Prunes. You'll be delighted with the *variety* of recipes—and you'll serve them often not only because they're *good* but for the good they *do.*

California prunes

"EVERY DAY IN SOME WAY"

UNITED PRUNE GROWERS OF CALIFORNIA
Dept. 12-HY-4, 343 Sansome Street
San Francisco, California

✓ Irradiated for "Sunshine" Vitamin D

✓ Fine in Flavor
✓ Creamy-Light in Color
✓ Smooth in Consistency

Are you ready for a real discovery? Do you want to know how to plan meals that are *more nourishing,* in a very important *new* way, and at the same time less expensive?

Then ask your grocer for the *Improved* Carnation Milk—the milk that's *irradiated.* That means that this good milk has been enriched with "sunshine" vitamin D—the bone-building, tooth-protecting vitamin that babies and growing children *must* have, and that benefits grown-ups too. Carnation Milk, always known for its economy, now supplies this increased nutritional value *at no increase in cost.*

You will be amazed when you realize how completely this improved, irradiated milk satisfies *every* milk and cream need. Undiluted Carnation, double-creamy, is perfect for creaming coffee, fruits, and cereals. And wonderfully economical. Diluted Carnation, with an equal amount of water added, gives you whole-milk richness for drinking or cooking. And cooking results are *better* because this milk is so smooth!

Carnation Milk is better for *babies,* too. It is so wholesome and nourishing, so safe and uniform, and, above all, so easy to digest. Many specialists regularly prescribe it—recommend it as an *ideal* milk for bottle-fed babies. And now that Carnation Milk is irradiated, they are more enthusiastic than ever. Ask *your* doctor about this.

Go ahead—*try* this Improved Carnation Milk! Look for the word "Irradiated" on the label. . . . And write for two worth-having free booklets—"100 Glorified Recipes" and "Contented Babies." Address Carnation Company, 921 Milwaukee Gas Light Bldg., Milwaukee, Wis., or 1022 Stuart Bldg., Seattle, Washington, or Toronto, Canada.

TUNE IN Carnation "Contented Hour." Monday evening, coast to coast, NBC.

"FROM CONTENTED COWS"

Improved
Carnation Milk
Ask Your Doctor

© 1934, E. R. Squibb & Sons

THE LIGHT THAT SHINES FOR ALL

Six centuries ago, the Black Death reached Europe in its march around the world. It killed one-quarter of the population. Into the same wide grave went saint and sinner, rich and poor, alike.

Today, the Black Death slumbers. Its legions are as terrible as ever, but they march no more through lands where medical science stands on guard.

Man's ancient enemy, disease, is everywhere. But now his ranks are thinning, before the light of medical science —the light that shines for all.

For saint or sinner, rich or poor—this bright white light burns on. Brighter and brighter it grows, piercing the farther darkness, lighting the way to health and happiness.

In its radiance, workers in chemical and biological laboratories have learned to make products for the preservation of health and the relief of suffering, products of uniform effectiveness and safety; and found the way to bring these products, through modern medical service, within the reach of all.

The House of Squibb is dedicated to the service of scientific medicine. We shall go on working with the medical profession, guardian of the public health.

E · R · SQUIBB & SONS

MANUFACTURING CHEMISTS TO THE MEDICAL PROFESSION SINCE 1858

THE PRICELESS INGREDIENT OF EVERY PRODUCT IS THE HONOR AND INTEGRITY OF ITS MAKER

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JANUARY TO DECEMBER, INCLUSIVE, 1934

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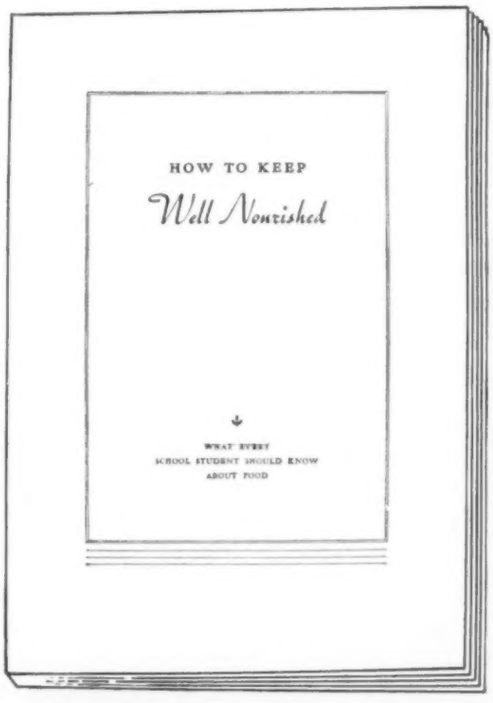

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